

The

CONSTRUCTOR

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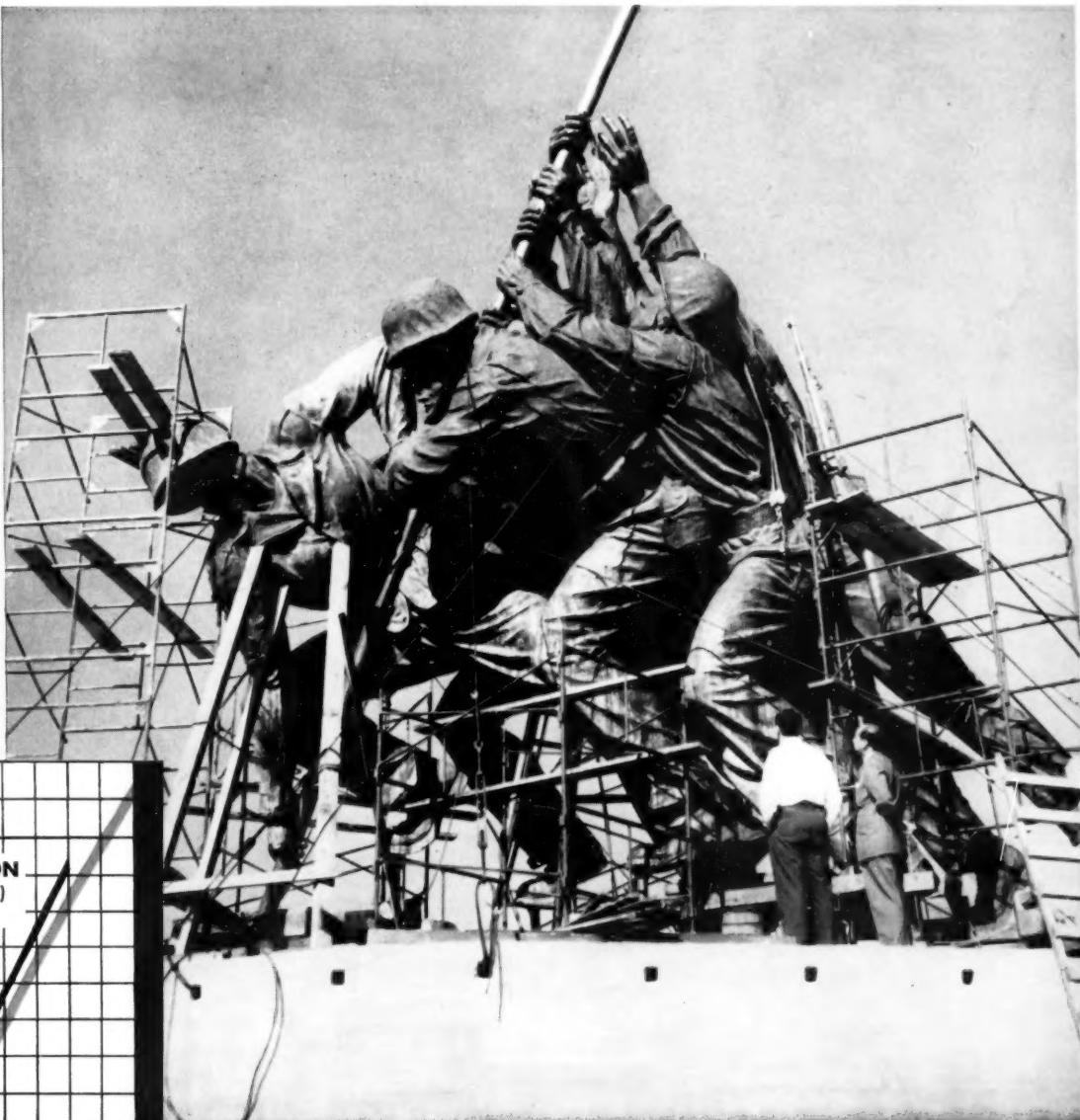
• BUILDINGS

• HIGHWAYS

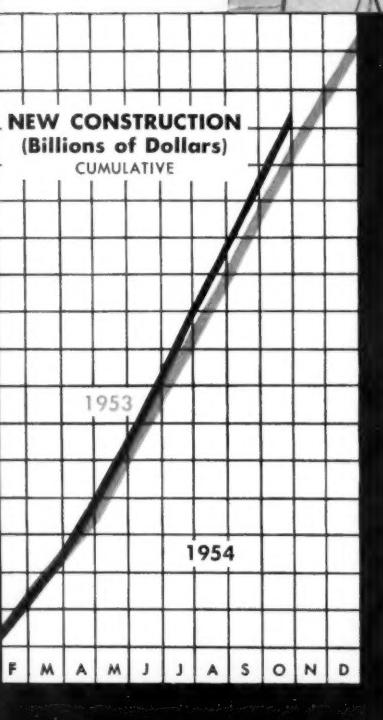
• AIRPORTS

• RAILROADS

PUBLIC WORKS



NEW CONSTRUCTION
(Billions of Dollars)
CUMULATIVE



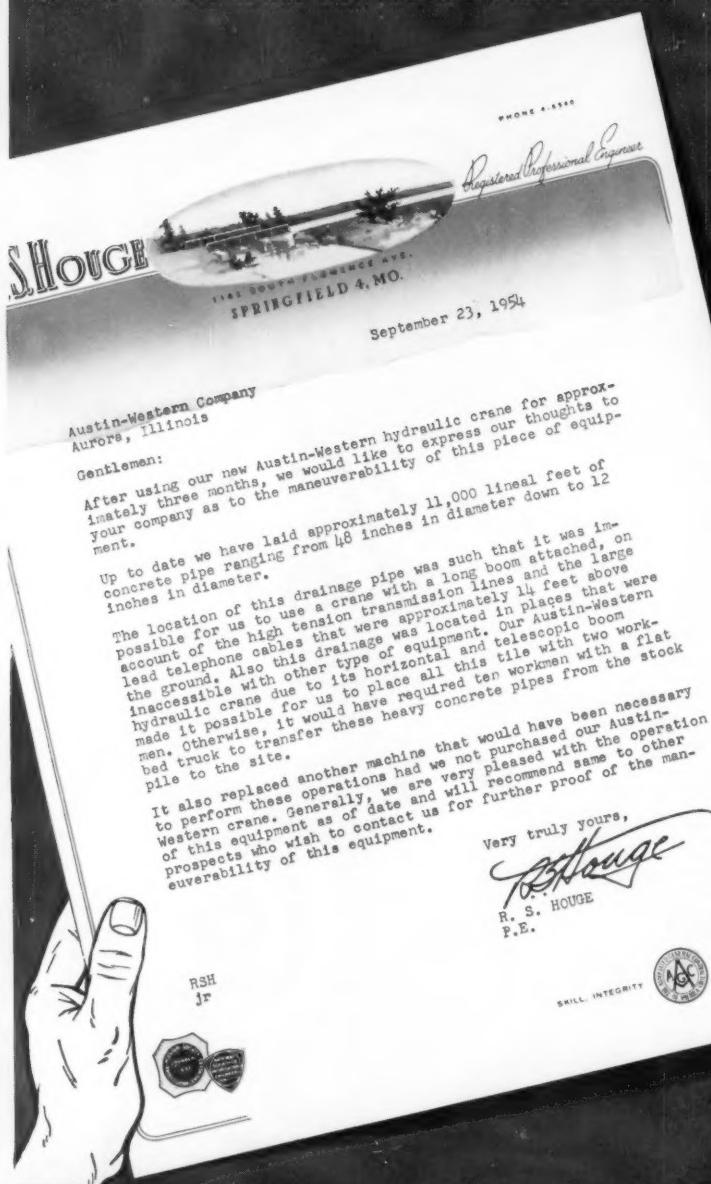
Move to Expand Construction Education—23

A.G.C. Units Backbone of Sponsored Reserves—30

Clay Committee Hearings on Highways—50

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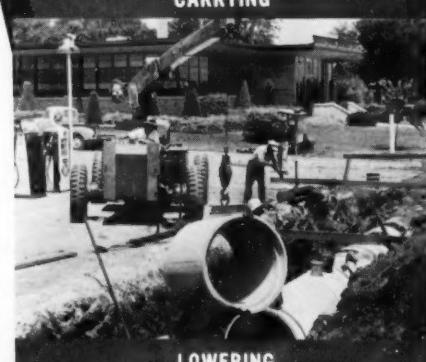
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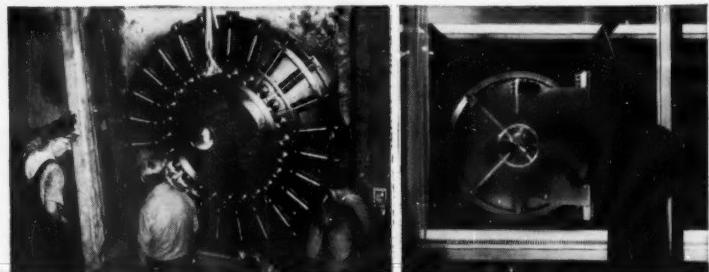
Placing 'Incor' concrete for New York's handsome 'showcase' bank, recently opened by Manufacturers Trust Company, at Fifth Avenue and 43rd Street, New York City.

MANUFACTURERS TRUST COMPANY
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*Reg. U. S. Pat. Off.

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COVER

The establishment of Sculptor Felix de Weldon's magnificent memorial of the planting of the American flag on Mount Suribachi, as a permanent reminder in the Nation's Capital of American fighting spirit, provided a photographers' field day. Dedication on Nov. 10 in commemoration of the Marine Corps' 179th anniversary was a fitting prelude to Veterans' Day. Figures on the statue are 32 ft. high, on a 10-ft. base, and the over-all height is 78 ft. Other pictures are shown on page 29. Mr. de Weldon is shown at right (on cover) supervising memorial's erection. (U. S. Marine Corps photos.)

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Construction volume continues above last year's record level, while general business shows seasonal gains in some areas of activity. New construction in October totaled \$3.5 billion, and cumulative total for first 10 months of 1954 was \$30.8 billion, 4 per cent more than last year's January-October record of \$29.5 billion (page 7).

Public hearings on President Eisenhower's proposal for a \$50 billion increase in highway construction over 10-year period were held Oct. 7-8 by the President's Advisory Committee on a National Highway Program, with spokesmen for 22 organizations testifying. Gen. Lucius D. Clay, committee chairman, said total cost of modernizing nation's highways and streets in 10 years was estimated at \$101 billion. Biggest problem is financing. A.G.C. Vice President George C. Koss assured committee of highway contracting industry's capacity to execute expanded construction program efficiently and economically (pages 50-55).

Fine example of teamwork between highway officials and contractors set in Nebraska, where highway department and A.G.C. chapter have completed 11-month program of reviewing state's new highway construction specifications (page 56).

Federal-aid grants for 164 airport construction or improvement projects, totaling \$20 million, were announced last month by Secretary of Commerce Sinclair Weeks. When matched by local governments, total expenditure of \$40 million will provide largest federal-aid airport program since 1951 (page 59).

Affiliated units surveyed by A.G.C., at the request of the Army, to determine the main obstacles being encountered by the different units. On Oct. 28 the association presented a progress report to Army officials based on the results of the survey. A.G.C. affiliated units make up backbone of sponsored reserves. (Full story begins on page 30.)

National Labor Relations Board majority ruled that picketing of a construction job by a union having a primary dispute with a painting subcontractor was an illegal secondary boycott because the union failed to indicate clearly that its actions were not also directed at the other employers at the common site (page 40).

Mason training program of the bricklayers' international union and the A.G.C. was praised last month as the chief reason for progress of apprentices in the bricklaying trade by W. F. Patterson, director of the Bureau of Apprenticeship, in his address to the union's annual convention (page 40).

A.I.A.-A.G.C. Joint Cooperative Committee, meeting after the midyear sessions of the Governing and Advisory Boards in St. Louis, recommended that adequate time limits be afforded general contractors for preparation of bids, that more local architect-contractor joint committees be formed, the issuing of standard amendments to A.I.A. insurance provisions, and the rejection of some architects' "catch-all phrase" in their specifications (page 43).

Modular coordination conference is set for Dec. 9 by the Building Research Institute of the National Academy of Sciences in Washington, D. C. Sponsored by the American Institute of Architects, the Producers' Council, the A.G.C. and other industry associations, the conference is expected to draw a large attendance of general contractors, material manufacturers, and architects (page 44).

Federal aid school fund allotments, totaling \$55 million, have been completed by the Department of Health, Education and Welfare. Funds, for the construction of schools in "federally affected" areas, have been reserved for new facilities in 288 communities located in 40 states, Hawaii and Alaska (page 44).

Spanish base construction work bids will be invited sometime this month or next by the Brown-Raymond-Walsh combination, prime contractors for the Spanish base program, for a P.O.L. system to serve the complex of American bases to be constructed in that country. Work includes construction of pipelines, pumping stations, and a series of storage tank farm terminals along the network (page 63).

Financing of construction projects at the operating level, including equipment purchases, and the President's proposed accelerated highway construction program occupied much of the program of the C.I.M.A.-A.G.C. Joint Cooperative Committee Sept. 28 in St. Louis (page 64).

National Safety Congress, meeting in Chicago last month, called for improved safety methods and their application to insure a safer America in which to work and play. Hundreds of speakers and more than 12,000 persons attending took part in one of the largest expositions yet conducted by the National Safety Council. One of the highlights of the congress was the presentation of awards for Association Achievement to the A.G.C. and 10 other associations (page 67).

Opportunities for civil engineers in construction are greater, today "than at any time in the history of our country," Dwight W. Winkelman, Syracuse, N. Y., past president of the A.G.C., told the Junior Member Conference of the A.S.C.E. meeting in New York City last month (page 27).

A.S.C.E., at its annual convention, elected William Roy Glidden, Richmond, assistant chief engineer of the Virginia Department of Highways, president for 1955, succeeding Daniel V. Terrell, dean of engineering at the University of Kentucky (page 77).

Atomic Energy Commission plans to spend \$67 million to expand its feed materials production and processing plants at three sites, it was announced last month. Included in the program is a new feed materials facility in St. Louis, and expansion of existing facilities at St. Louis, Fernald, Ohio and Paducah, Ky.

A.A.S.H.O.-A.G.C. Joint Cooperative Committee, meeting at annual conventions of Western Association of State Highway Officials at Sun Valley, Idaho, and Southeastern Association of State Highway Officials at Nashville, Tenn., discussed the President's proposal for expanding highway construction and concluded such a program would be a sound investment. W.A.S.H.O. and S.A.S.H.O. elected new officers at their conventions (page 59).

N.A.S.A.O.-A.G.C. Joint Cooperative Committee met at annual convention of National Association of State Aviation Officials in Seattle and adopted resolution urging Civil Aeronautics Administration not to place further restrictions on allocation and matching of federal-aid airport funds. N.A.S.A.O. elected new officers at its convention (page 59).

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Construction Still High as General Business Shows Seasonal Gains

»WITH 10 months of the year gone, the construction industry remains, as it has been since the beginning of 1954, the only major area of economic activity operating at a level higher than last year's record rate. (Latest figures on the volume of new construction are given in the accompanying box.)

Elsewhere in the economy there has been little change in conditions, as reported last month by government agencies, other than seasonal increases in some areas of activity.

In its report on the general business situation Oct. 26, the Department of Commerce said over-all activity "remained on an even keel" in the late summer and early fall, with seasonal increases in production, employment and consumer buying. It noted that construction reached a new high in September, "continuing the strength shown in the other months of this year."

Economic Highlights

Key items listed in the October issue of the department's *Survey of Current Business* were:

- Retail sales in September increased by the usual amount from August, and for the third quarter as a whole, on a seasonally adjusted basis, were equal to the second-quarter rate and also to the third quarter of 1953.
- Personal income continued at a "high and even rate, providing basic support for the economy." Personal income in August was at a seasonally adjusted annual rate of \$285.4 billion.
- Industrial production has remained level this year at a rate about the same as that for 1952 but 9 per cent below the peak quarter of 1953.
- There has been "a significant pickup" in steel mill operations in recent weeks, "reflecting increased buying by steel-consuming industries." The weekly operating rate was advanced from 63 per cent of rated capacity in early September to a scheduled rate of 74 per cent in the third week of October.

Unemployment Decreases

The number of unemployed persons dropped by 358,000 early last month, from 3,099,000 in the week of Sept. 5-11 to 2,741,000 in the week of Oct. 3-9, according to the monthly *Report on the Labor Force* prepared by the Bureau of the Census.

There was, however, no corresponding gain in the number of persons em-

Volume of New Construction

The volume of new construction continued extremely high in October, amounting to \$3.5 billion, according to preliminary estimates by the Departments of Commerce and Labor. This was only 3 per cent below the all-time high monthly volume of \$3.6 billion reached in both August and September, and represented no more than a seasonal decline.

The October figure was 8 per cent higher than that for the same month of last year.

The cumulative total of new construction for the first 10 months of the year was \$30.8 billion, an increase of 4 per cent over last year's January-October total of \$29.5 billion.

New construction in October was at a seasonally adjusted annual rate of \$37.45 billion, only a little more than 1 per cent below the record annual rate of \$37.9 billion established in September.

The seasonally adjusted annual rate of new construction for the first 10 months of 1954 was \$36.8 billion, compared with actual expenditures of \$35.25 billion for new construction in all of 1953. The indicated increase in new construction this year over last year's record annual volume is approximately 3.5 per cent.

In general, construction activity in October continued the high trends of commercial and private residential building and state and local public works, with the volume of highway construction especially large.

ployed, which remained at 62.1 million. One explanation for this was that the farm work force contracted after the peak harvest period to offset employment gains in nonfarm industries. Agricultural employment declined by nearly 300,000 during that period while employment in nonfarm industries increased by approximately the same figure. The chief explanation, however, was that the total civilian labor force contracted by 361,000 during the month, approximately the same number as the decrease in unemployed persons. In other words, fewer persons were looking for jobs, due principally to the fact that many young men and women who had been

employed or were seeking employment left the labor force to return to schools and colleges.

Manufacturers' Orders Rise

New orders placed with manufacturers rose in September to the highest seasonally adjusted rate since the summer of 1953, the Office of Business Economics of the Department of Commerce reported at the end of October. The increase in orders during September was largest in durable-goods industries, chiefly reflecting heavier placement of defense orders with transportation equipment companies, the report said. Among producers of nondurable goods, the upsurge in new business was "quite sizable" for textile firms, and moderate in most other major soft-goods areas.

Sales by manufacturers also rose slightly in September. The increase was general, except for shipments by motor vehicle manufacturers, which declined sharply because of model changeovers, almost completely offsetting substantial gains in most other durable-goods areas.

Unfilled orders increased by \$400 million in September, to \$47.7 billion, to register the first gain in nearly two years.

Inventories were \$300 million lower at the end of September than at the end of August, after seasonal adjustment. This represented about the same rate of decline in inventories as in other recent months.

Industrial Production

The Federal Reserve Board in its national summary of business conditions published Oct. 14 reported little change in industrial production and employment in September. While industrial production rose seasonally during the month, the board's preliminary adjusted index remained unchanged from August at 124 per cent of the 1947-49 average, as compared with 133 per cent in September, 1953.

Housing to Remain High in 1955

Ewan Clague, special assistant to Secretary of Labor James P. Mitchell, forecast a continuing high rate of housing activity in 1955 in a speech before the National Association of Home Builders Oct. 14 in New York. The vitality of the housing market, he said, is due not only to favorable economic factors, but also to a greater desire for home ownership as a social goal.

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TEST**

A Series of Graphs Outlining the Construction Trend

Compiled by The Associated General Contractors of America

TREND OF CONSTRUCTION COSTS

The average of construction costs in the principal construction centers of the United States for October stands at Index Number 432 according to the A.G.C. Index. The cost figure for October 1953 was 418. The 1913 average equals 100.

WAGE AND MATERIAL PRICE TRENDS

The average of wages in the principal construction centers of the United States stands at 608 for October. One year ago the average stood at 587. The average prices paid by contractors for basic construction materials for October stand at Index

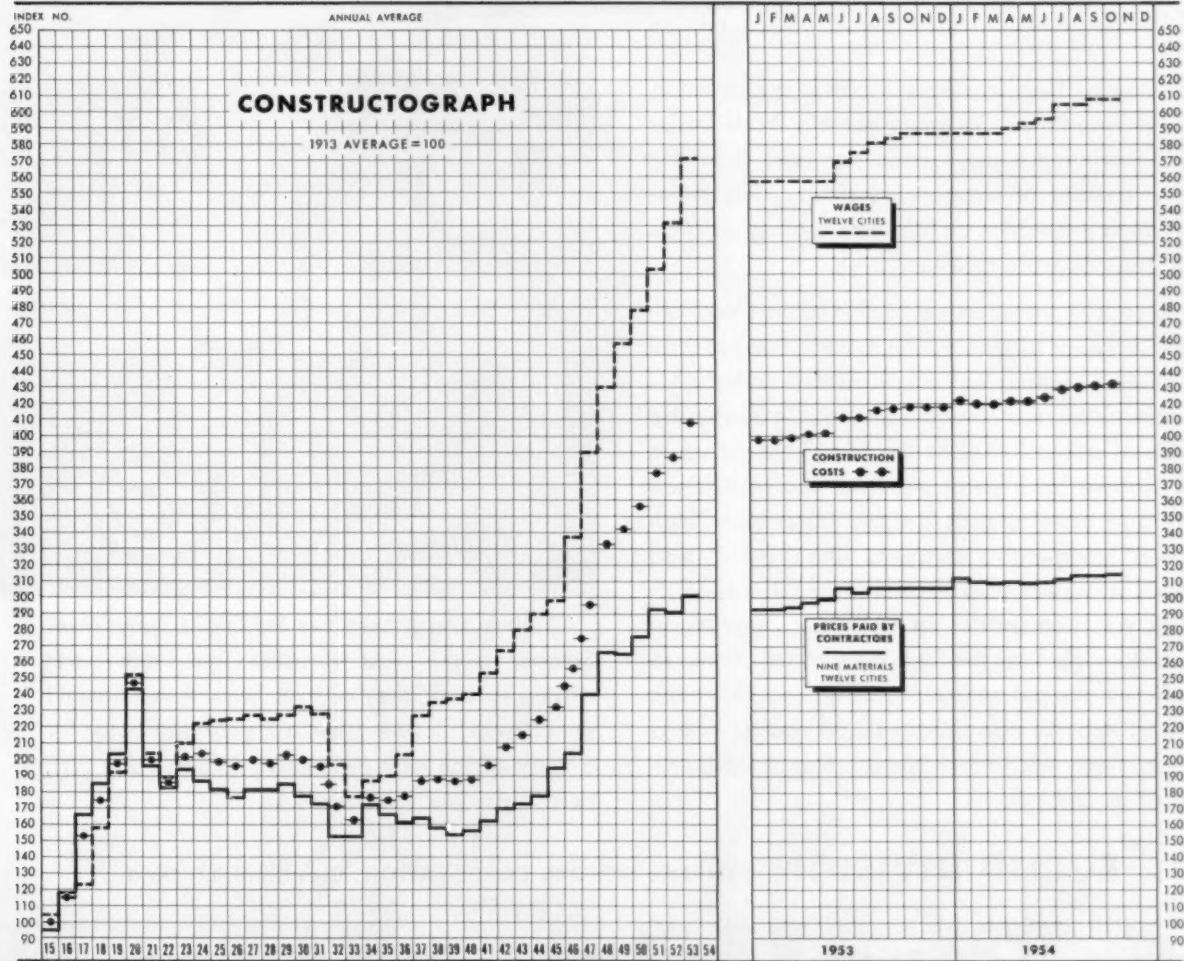
Number 315. The average a year ago stood at 306. The 1913 average, again, equals 100.

CONTRACT AWARDS IN 37 STATES

The volume of contracts awarded during September (Index Number 320, based on 1936-38) is an increase of 43 points from August and an increase of 4 points from September 1953. (F. W. Dodge Corp.)

REVENUE FREIGHT LOADINGS

Revenue freight loaded during the first 43 weeks of 1954 totaled 27,923,657 cars. For the same period in 1953, loadings amounted to 32,310,025 cars. This represents a decrease of 13.5%.

• Wage, Material Price and Construction Cost Trends

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On a 2½ million cu. yd. section of the New York Thruway near Kingston, John Arborio, Inc. has used 7 "Twins" to move extremely difficult material... ranging from river sand to wet clay. On a complete cycle of about 8,000 ft. the "Eucs" moved up to 40% more bank yards per hour and maintained average travel speeds 2 m.p.h. faster than "high speed" competitive scrapers. The "Twins" had plenty of power and traction to haul loads of 17 bank yards on grades up to 20%... they made the return trip from the fill in a hurry, too, thanks to their two engines with separate Allison Torqmatic Drives. Arborio also used a Euclid Loader with a large fleet of Bottom-Dumps, and Rear-Dump "Eucs" on this job.



Owners everywhere say the Euclid Twin-Power Scraper is the most versatile "one man earth moving spread" they've ever seen. If you haven't seen "Twins" in operation, ask your distributor for a copy of the new descriptive folder, Form 551, before you bid your next job.

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

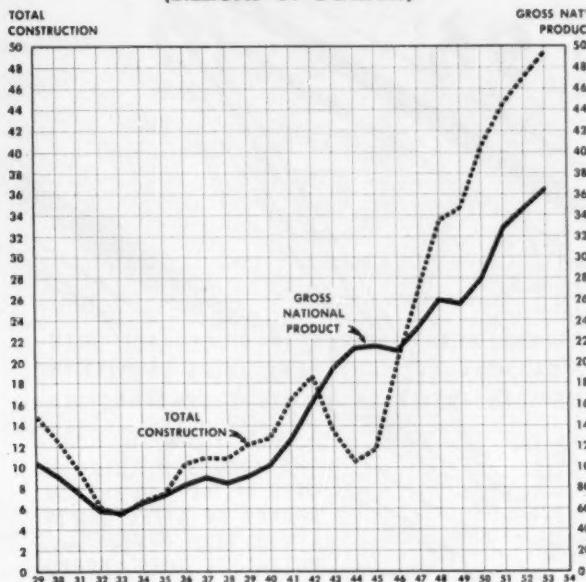


Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

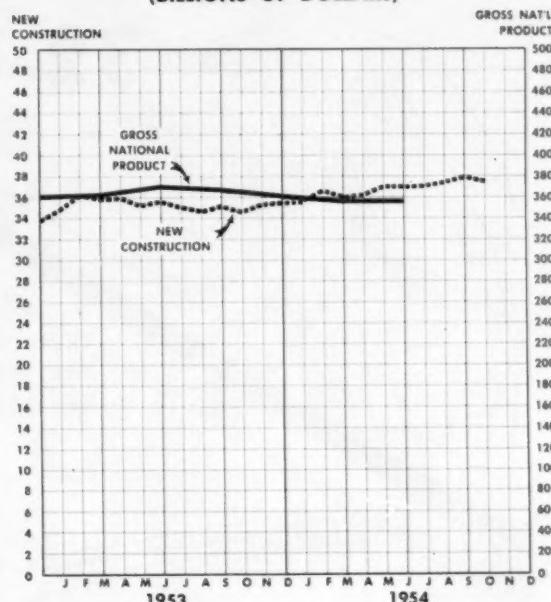


**● TOTAL Construction Compared
with Gross National Product
(BILLIONS OF DOLLARS)**



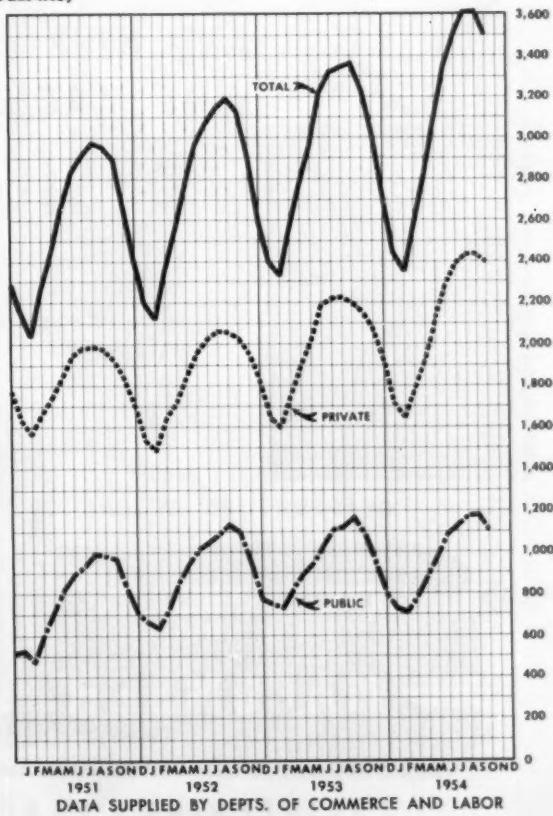
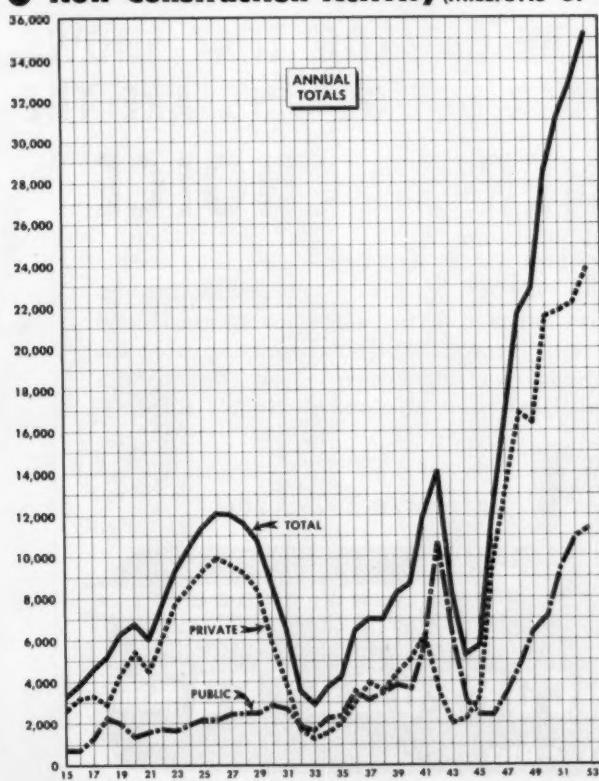
DATA SUPPLIED BY DEPT. OF COMMERCE

**● NEW Construction Compared
with Gross National Product *
(BILLIONS OF DOLLARS)**



*Seasonally adjusted at an annual rate

● New Construction Activity (MILLIONS OF DOLLARS)



DATA SUPPLIED BY DEPTS. OF COMMERCE AND LABOR

HERE IS STRENGTH- AS ENGINEERED BY MACOMBER FOR EACH LOAD AND SPAN

32' TO 96'



THESE LONGSPANS ARE DESIGNED IN ACCORDANCE WITH
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THE MACOMBER V SECTION
USED IN TOP AND BOTTOM
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SINCE 1946 GIVES THE
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BUILDING PRODUCTS
STEEL TRUSSES • STEEL DECK

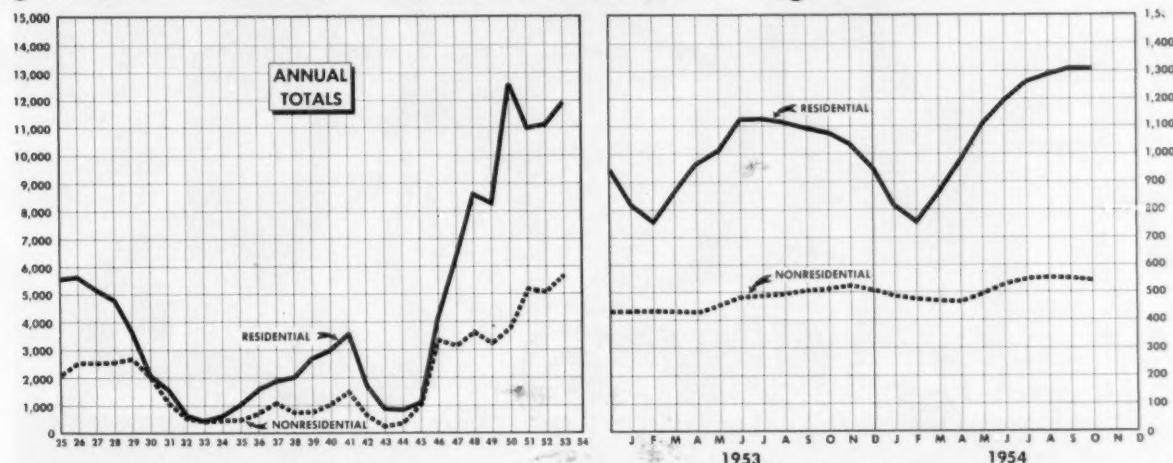
MACOMBER INCORPORATED

CANTON 1, OHIO

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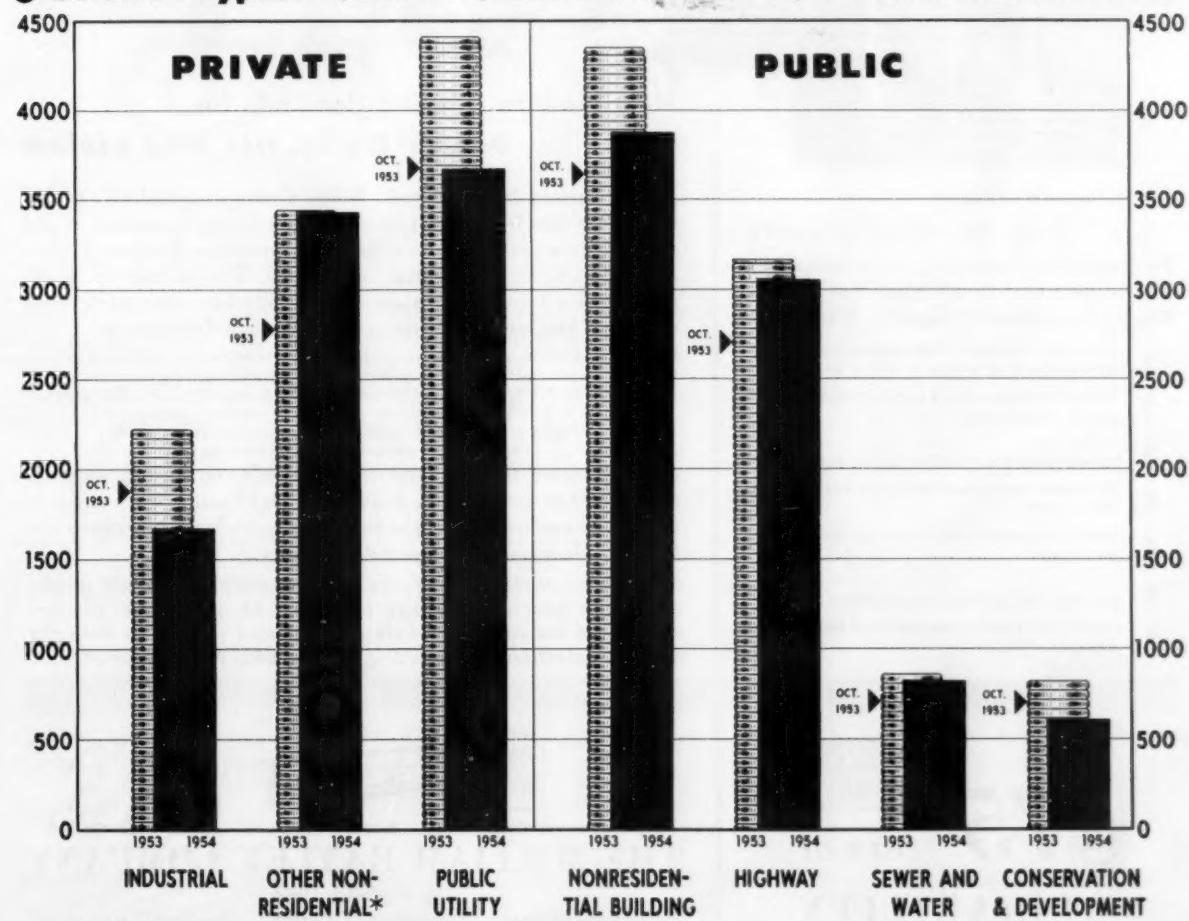
NEW CONSTRUCTION ACTIVITY

● Private Residential and Nonresidential Building * (MILLIONS OF DOLLARS)



* Residential excludes farm; Nonresidential includes industrial, commercial, institutional, and social and recreational building, but excludes public utility building.

● Selected Types: (CUMULATIVE, MILLIONS OF DOLLARS) 1953, 1954 VOLUME THROUGH OCTOBER



* Includes commercial, institutional, and social and recreational building

White Cross Hospital reports multiple savings after modernizing with BAYLEY WINDOWS



Read these briefs from the official report:

By replacing swinging type solarium windows at end of corridors with Bayley Aluminum Projected Windows:

1. Daily coal consumption was reduced from 15 ton to 9 ton—a daily savings of \$40 to \$45.
2. Hallway radiators were eliminated—and still warmer than before.
3. Housekeeping was simplified by less dirt seepage.
4. Maintenance was reduced because of fewer moving window parts.
5. Hazard of patient escape through the windows was reduced.
6. Cost of periodic painting of windows was eliminated.
7. Interior and exterior appearance of building was enhanced.

Meet modern hospital demands for **better light, air and vision**

Just as others have proved! White Cross Hospital of Columbus, Ohio has found that modernizing by replacement of old style windows with modern Bayley Aluminum Projected Windows results in substantial economies. This is not to speak of improved building appearance, window operating convenience and other advantages from such features as:

Modern appearance • Economy—painting unnecessary • permanence—long care-free life • Simplicity—no complicated mechanism • Adaptable to all types of construction • Glazing outside—flat surface inside • Easily washed from inside • Prepared for screens • Permits use of accessories, such as draperies, shades, curtains, venetian blinds or awnings.

Combining all these merits with no-draft ventilation, awning-type weather protection, maximum light and vision area, it is easy to realize why there is such a growing preference for Bayley Aluminum Projected windows.

Call Bayley at the start of any plan to modernize. We'll gladly work with you—and through our years of specialized window experience we can very likely render extra counsel in both the window selection and building alterations. No obligation.


**75 Years of
RELIABILITY**

    
PROJECTED PIVOTED RIBBON GUARD PSYCHIATRIC
THE WILLIAM BAYLEY COMPANY
Springfield, Ohio
District Sales Offices: Springfield Chicago New York Washington

For Moderate Income Families of Large Cities

(Formerly referred to as the "Cost of Living Index," compiled by the Bureau of Labor Statistics)

The average cost of living for the month ending Sept. 15 declined 0.3% to 114.7, the Bureau of Labor Statistics reported last month. The consumer price index was estimated at 0.4% lower than a year ago and 12.7% above the June, 1950, level.

Principal factor in the decline was a 1.3% decrease in food prices, although costs of transportation and recreation also went down. A 9.5% decrease in coffee prices was mainly responsible for the decline in food prices. Fresh foods and vegetables also contributed to the decrease which was largest for potatoes, 11.5%; apples, 13.5%; and tomatoes, almost 20%. Orange prices, which have risen almost 50% since last March, reached their highest level since 1920. An increase in egg prices was expected, but record production actually brought a reduction.

There was a continued increase in housing costs. The 0.3% increase includes household furnishings, maintenance and rents. Prices of sheets, rugs, and some furniture and appliances were responsible for this increase, along with a 0.2% increase in rents.

Women's apparel prices were higher than at the end of last season, while men's clothing remained about the same.

New car and tire prices continued to decline, as dealers tried to clear their stocks.

The consumer price index, formerly calculated on the base of 1935-39 = 100, was converted beginning last year to the new base 1947-49 = 100 in compliance with recommendations of the Bureau of the Budget.

A portion of this index below indicates the average changes in retail prices of selected goods, rents, and services bought by the average family of moderate income from July 15, 1952 to September 15, 1954.

They are presented here for use by employers who may wish to take these cost of living data into consideration when contemplating adjustments of wages based on increased living costs.

Aside from the change of the base years, the revised index includes prices of about 300 items, compared to some 200 for the previous index. The "weight" assigned to items is now based on facts concerning family expenditures of wage earners and clerical workers found in a survey of consumer expenditures conducted by the bureau.

The first five cities in the table below are checked and reported on monthly. The other 15 cities are surveyed and their indexes published quarterly.

	1952			1953			1954		
	JULY	AUG.	SEPT.	JULY	AUG.	SEPT.	JULY	AUG.	SEPT.
Average.....	114.1	114.3	114.1	114.7	115.0	115.2	115.2	115.0	114.7
New York, N. Y.....	112.3	112.2	112.4	112.1	112.7	113.2	113.3	113.0	112.7
Chicago, Ill.....	115.0	115.5	115.0	115.7	116.3	116.6	118.0	117.7	117.4
Los Angeles, Calif.....	115.0	114.9	115.0	115.8	115.8	116.2	114.9	115.1	115.4
Philadelphia, Pa.....	114.8	114.9	114.7	114.7	114.9	115.2	116.3	116.2	116.2
Detroit, Mich.....	114.6	115.0	114.7	116.9	116.9	116.9	117.5	116.8	116.2
Atlanta, Ga.....	117.0	.....	.....	.....	117.6	.....	.....	116.3	.....
Baltimore, Md.....	.....	115.0	.....	.....	115.0	.....	.....	115.2	.....
Boston, Mass.....	113.7	113.7	113.2	113.1	.....	.....	113.8	.....	.....
Cincinnati, Ohio.....	113.4	113.4	113.2	.....	.....	115.3	.....	.....	114.3
Cleveland, Ohio.....	.....	114.0	.....	.....	115.1	.....	.....	115.3	.....
Houston, Texas.....	115.2	115.8	115.5	.....	116.8	.....	.....	116.5	.....
Kansas City, Mo.....	115.3	.....	.....	115.3	.....	.....	115.6	.....	.....
Minneapolis, Minn.....	.....	.....	114.8	115.6	.....	.....	117.3	.....	.....
Pittsburgh, Pa.....	113.0	113.5	113.2	113.8	.....	.....	115.4	.....	.....
Portland, Ore.....	114.7	.....	.....	115.5	.....	.....	115.5	.....	.....
St. Louis, Mo.....	.....	.....	115.5	.....	117.1	.....	.....	115.7	.....
San Francisco, Calif.....	.....	.....	114.5	.....	116.9	.....	.....	116.2	.....
Scranton, Pa.....	.....	114.0	.....	.....	113.2	.....	.....	112.4	.....
Seattle, Wash.....	.....	114.6	.....	.....	116.8	.....	.....	116.2	.....
Washington, D. C.....	.....	114.1	.....	.....	114.2	.....	.....	114.1	.....



Drainage and utility 202 Trenchliner (above) combines big work capacity with precision grading accuracy . . . produces up to 17½ feet of trench per minute. Digging wheel holds accurate grade, responds instantly to friction clutch control. Quick-change bucket fronts have cutting lips or teeth to suit soil conditions. Tile box and chute (optional) save time, labor on drainage jobs. Ground pressure is only 5 or 6 lbs. PSI with 16 or 20-inch rail-type crawler treads. Gas or diesel power.

Cross-country 215 Trenchliner (left) brings you all the high-speed digging advantages of wheel-type trenching . . . plus the increased traction of standard tractor crawlers, 18-inch treads and lug-type shoes. It digs up to 18 feet per minute, 13 to 31 inches wide, 6 feet deep. Hinged crumbler sweeps trench bottom clean, ready for pipe. Choice of 2 standard 55 h.p. diesel engines.

Other big-production advantages of these 2 Parsons wheel-type Trenchliners include: square or round-bottom buckets . . . cleaners for both solid or tine-back buckets . . . self-sharpening, easy-in-easy-out "Tap-In" teeth. For complete details, contact Parsons distributor, or write.

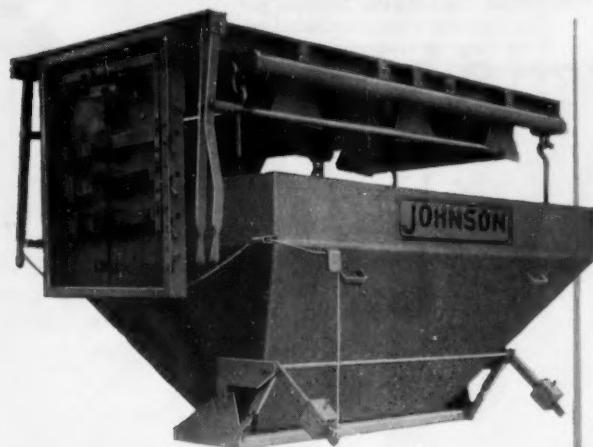
P435



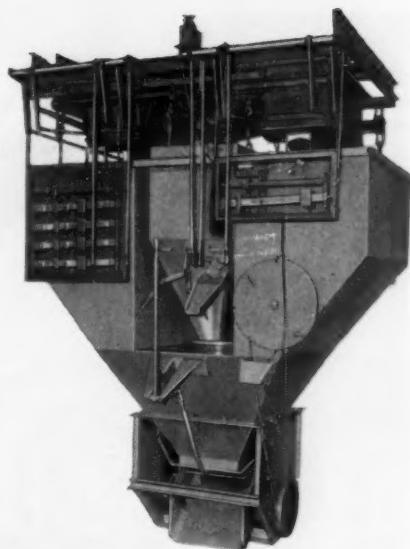
Also check Parsons for ladder-type Trenchliners: 3 heavy-duty sizes, all full crawler mounted, and rubber-tired Trenchmobile®.

PARSONS Trenchliners®
NEWTON, IOWA
(Koshing Subsidiary)

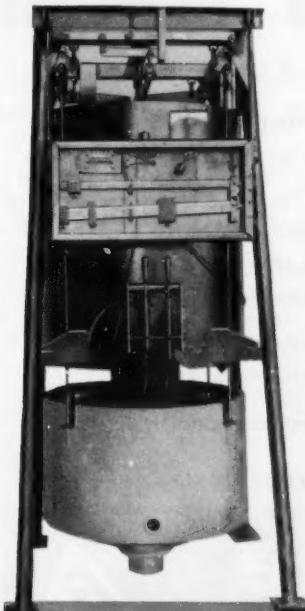
Ways to increase batching efficiency:



Fast filling . . . You save valuable seconds on batching time with Johnson "Hi-Speed" Roadbuilders Batcher, because big 15" x 36" fill valves permit fast charging. Wide fill valves also retain low batcher height. Standard batcher handles 2, 3 or 4 aggregates . . . has counterweighted wide-discharge gate with scale beams and hopper for standard 34-E paver batch. Capacities: 1½, 2, 3, 4 and 5 cu. yds. Truck-mixer-type hopper (interchangeable on same scale frame) handles 2 to 4 aggregates . . . or 2 or 3 aggregates and 1 cement. Has double-clam discharge gate, collector cone.



Central cement feed . . . prevents gumming, reduces dusting, and pre-shrinks materials. You get this big advantage with Johnson Concentric Batcher, because aggregates are arranged concentrically around the cement. All ingredients are intermingled as they flow through discharge. Cement is weighed separately on precision beam scale; aggregates on accumulative dial scale, or on individual beam scales. Dual discharge available. Batcher sizes range from 2 to 8 cu. yds., can be arranged for 2 to 8 aggregates, plus 1 to 4 types of cement. Fully-automatic, semi-automatic, or manual controls.

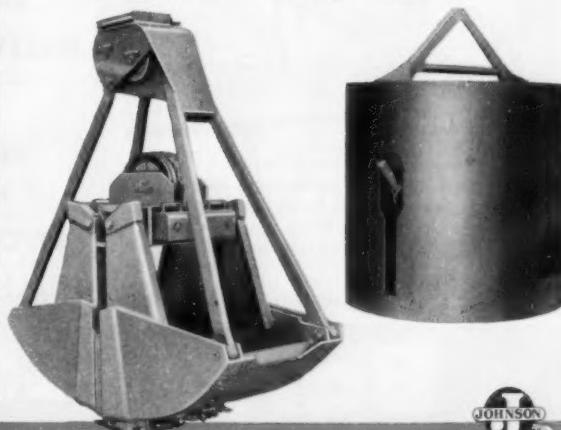


Accurate water weigh-batching

assures close quality control in concrete mix plant operation. Johnson Water Batchers are available in 2 sizes: 120-gallon (1,000 lbs.) for batches up to 3 yards . . . and 240-gallon (2,000 lbs.) for batches up to 6 yards. Weighing accuracy is not affected by changes in water temperature. Semi- or full-automatic types.

For more information on these, and the many other types of Johnson Batchers, contact your Johnson distributor . . . or write us.

Also check . . . Johnson clamshell buckets for stockpiling aggregates, charging bins . . . and Johnson concrete buckets for pouring normal-slump to stiff-slump concrete. There are 3 types of all-welded clamshells to choose from, in 10 sizes . . . ½ to 3 cu. yds. Heavy-duty concrete buckets are available in 3 types, and 8 sizes ranging from ½ to 8 cu. yd. capacities.



Send us literature on items checked: mail to: **C. S. JOHNSON CO., CHAMPAIGN, ILL.**

- "Hi-Speed" Roadbuilders Batcher
- Concentric Batcher
- Water Weigh Batcher
- Clamshell Concrete Buckets

BINS • BATCHERS • SILOS • ELEVATORS • RECEIVING HOPPERS • ELEVATING CHARGERS



(Koehring
Subsidiary)



Model 363 shown with car unloader. Lengths to 35 feet. Capacities to 200 tons per hour. Swivel wheels for radial stock piling. Wide range of accessories, including screens.



Model 374 shown with flanged wheel for radial stock piling. Available with steel wheels or pneumatic tires. Lengths to 60 feet. Capacities to 430 tons per hour. Wide range of accessories, including vibrating screens.

MOVE bulk materials the cheapest way.

MOVE sand, gravel, cement, wet concrete, coal, coke, ashes, chemicals — almost any bulk material.

MOVE with machines that are truly portable — easily moved around the yard, or towed on the highway.

MOVE materials continuously with less horsepower, less labor, less cost.

MOVE today toward greater profit.

Let us show you how Barber-Greene can reduce your costs.

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cost studies . . . nearby job inspection . . . plant layouts



Sidelights for Contractors

By John C. Hayes, Counsel

Hayes and Hayes, Munsey Building, Washington 4, D. C.

Taxes

Depreciation. — Tentative regulations on the deduction of depreciation under the Revenue Code of 1954 have been published by the Internal Revenue Service. These regulations explain the various methods of depreciation permissible with respect to property acquired after 1953, including the declining balance, the sum of the years-digits, and other consistent methods; and set forth the rules concerning agreements to be made as to useful life and rates of depreciable property.

Corporate Returns. — An Internal Revenue ruling states that corporations unable to determine their tax liability under the Revenue Code of 1954 prior to the time for filing returns thereunder may get extensions of time up to six months, provided they file timely tentative returns and make payments accordingly. If the tentative payments exceed the tax liability as later indicated by the completed return, Internal Revenue states its policy will be to refund the overpayment without waiting for examination of the completed return or for the filing of a refund claim.

Liability for Interest. — Under the Revenue Code of 1954, Internal Revenue announces the general rule that interest at 6% will run on any amount of tax not paid at the due date. An exception is that 4% interest applies in the case of the estate tax where an extension of time for payment is granted or postponement of payment is permitted. Another exception is that interest (as such) does not apply to failure to pay installments of estimated income tax by individuals or corporations. On overpayments of any internal revenue tax, interest is allowed the taxpayer at 6%; but the 1954 Code provides that no interest shall be allowed on any overpayment of income tax refunded within 45 days after the last date prescribed for filing the return of such tax.

Insurance Beneficiaries. — A circuit court has held that a taxpayer's widow and surviving children who were the beneficiaries of the taxpayer's life insurance were not liable as transferees

for his unpaid income tax, where the proceeds of the insurance were not payable to the estate and never constituted property of the decedent, there was no proof of the taxpayer's insolvency prior to death or that the policies were taken out with intent to defraud, and the state law imposed no liability on them for decedent's income tax deficiencies.

Stock Redemption. — A cancellation by a closely held corporation of half of its outstanding stock and a pro-rata cash distribution to its stockholders, the Tax Court decided, was essentially equivalent to a taxable dividend to the extent of earnings and profits. The corporation had had a large earned surplus, and while there was a contraction of the size of the business, there was no corresponding decrease in the capital used therein.

However, where a corporation bought all of the stock of its majority stockholder for a certain amount payable in installments and the latter resigned as an officer and director but remained temporarily in the corporation's employ to train key employees, Internal Revenue ruled that the redemption of stock did not constitute a taxable dividend but rather a distribution in partial liquidation (taxable as a capital transaction) to the extent that the distribution did not exceed the fair market value of the redeemed stock.

Reasonable Compensation. — Although neither of two officers of a corporation devoted a great amount of time to its business, the Tax Court upheld the deductibility of their modest salaries and bonuses which were reasonable in amount for their advice and other services actually rendered. The court remarked: " * * * a part-time officer, having exceptional ability, wide contacts, and a reputation for financial responsibility, might well be worth more to a corporation than a full-time officer lacking these desired qualities."

Bad Debt. — A district court agreed with a lumber company that the latter was justified in charging off certain debts as becoming worthless during the taxable year, despite the fact they were collected wholly or partially in

subsequent years. A determination of worthlessness is a question of sound judgment based upon the relevant facts as they exist at the time, the court stated, and subsequent facts relate only to the soundness of this judgment rather than to the fact of worthlessness.

Moving Expenses. — In clarification of its position on the subject, Internal Revenue has published a ruling that amounts received by an employee from his employer as allowance or reimbursement for moving himself, his immediate family, or personal effects, in the case of a transfer in the interest of the employer, from one official station to another for permanent duty, are not includable in gross income of the employee if the total amount is expended for such purpose. Any excess is includable in the employee's gross income, and any amount received for board or lodging while awaiting permanent quarters at the new post of duty is also includable.

Partnership Interest. — For estate tax purposes, the Tax Court has decided that the value of a partnership interest may be limited to the book value thereof by a partnership and purchase contract obligating the surviving partners to buy the decedent's interest at that price and preventing the decedent from selling his interest during his lifetime.

Public Contracts

Renegotiation. — Tentative regulations have been issued under the recent extension of the Renegotiation Act. One proposed change therein would lengthen the time for filing of reports until the first day of the fifth month following the close of the contractor's fiscal year.

Standard Contract. — A circuit court has decided that the provisions in the standard form of federal government construction contract requiring contractors engaged on the same project to cooperate with each other was intended only for the government's benefit and did not permit one contractor to recover from another for alleged failure to cooperate.

All ADAMS Motor Graders now equipped with NEW Constant-Mesh Transmission



Plus these time-saving,
work-producing features
available in no other
single grader—

- **8 FORWARD SPEEDS**
Up to 26 mph. for fast transport.
- **3 CREEPER SPEEDS**
Low as $\frac{1}{4}$ mph. (optional).
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Up to 13 mph. Save time on shuttle work.
- **DUAL BRAKING SYSTEM**
Provides quicker, easier, safer stops,
with less pedal effort.
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Floating power—no vibration trans-
mitted to grader.
- **FOOT ACCELERATOR**
For easier, safer overland travel.

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Indianapolis, Indiana

Let your local ADAMS dealer demonstrate
the size best suited to your needs—75 to 140 H.P.

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The Clay Committee Hearings

THE EXPANDED highway construction program proposed for the next 10 years by President Eisenhower, whatever its actual size ultimately proves to be, seems certain to be one of the largest governmental construction undertakings in the country's history.

The size of the program remains to be determined, after completion of studies by the President's Advisory Committee on a National Highway Program and by the Governors' Conference, and after due consideration by Congress. At least the upper and lower limits of the proposed program, however, are discernible now; and the size finally decided upon will be somewhere in between.

The lower limit can be fixed, at least roughly, on the basis of what normal highway construction will be in the next 10 years at present outlays. The 10-year total for normal construction is expected to be about \$47 billion. Any substantial expansion of construction would raise the total by many billions. An increase of only \$1 billion a year for 10 years would put it close to \$60 billion. What President Eisenhower has proposed is an increase of \$5 billion a year, or \$50 billion more in 10 years.

The upper limit of a 10-year highway program can be fixed more definitely at about \$101 billion. That is the figure arrived at by the Bureau of Public Roads in a preliminary tabulation of state, county and city estimates of highway construction needs. It is a new estimate, and the most comprehensive one ever made, including all state and federal highway systems, city streets, and all other public roads.

So an expanded highway program will cost an amount at least in excess of \$60 billion and up to \$101 billion in 10 years. It is the evident intention of President Eisenhower and his Advisory Committee on a National Highway Program to arrive at an amount close to the higher figure.

Gen. Lucius D. Clay, chairman of the committee, clearly stated the intention in his opening remarks at the public hearings conducted on Oct. 7 and 8. He said:

"This total for a 10-year program is about \$101 billion. If we continued our present program, revenues available for construction during the next 10 years would be about \$47 billion. That leaves a deficit of about \$54 billion. The reduction of this deficit with sensible financing is our goal."

In the testimony before the Clay committee offered by spokesmen for 22 organizations concerned with highway development, there was some questioning of the \$101 billion estimate of total needs. This presages efforts on the part of some to reduce the size of the program when the matter comes up in Congress, to which the President intends to submit "positive proposals" at the next session. There have been indications also that governors of some of the states do not favor so large an expansion of highway construction as that proposed by the President. It

should not be surprising, therefore, if the extent of the program finally approved fell considerably short of the \$101 billion estimate of total needs.

It would be surprising, however, if the program finally adopted did not represent a very large expansion. The preponderance of testimony at the Clay committee hearings recognized the need of a greatly expanded highway program, and reflected a strong conviction that it would be a sound investment. On behalf of The Associated General Contractors of America, George C. Koss, A.G.C. vice president, gave assurance to the committee that the highway contracting industry has the capacity to execute such a program efficiently and economically, with continuously greater value to the public for its investment.

The big problem, it was recognized on every hand, is that of financing such a program. Some financing proposals have been advanced which deserve careful consideration. It is to be hoped that the Clay committee can come up with a plan of financing that will be adequate to the purpose and will appeal to Congress as feasible.

The Growing Stature of the A.G.C.

THROUGH the years The Associated General Contractors of America has enjoyed widespread public recognition as a responsible, authoritative spokesman for the contracting industry. As the A.G.C. has grown, its stature in that respect has increased.

Evidence of this continued growth of stature has been furnished in considerable abundance by the prominent position accorded A.G.C. actions and statements in newspapers throughout the country in connection with some recent events.

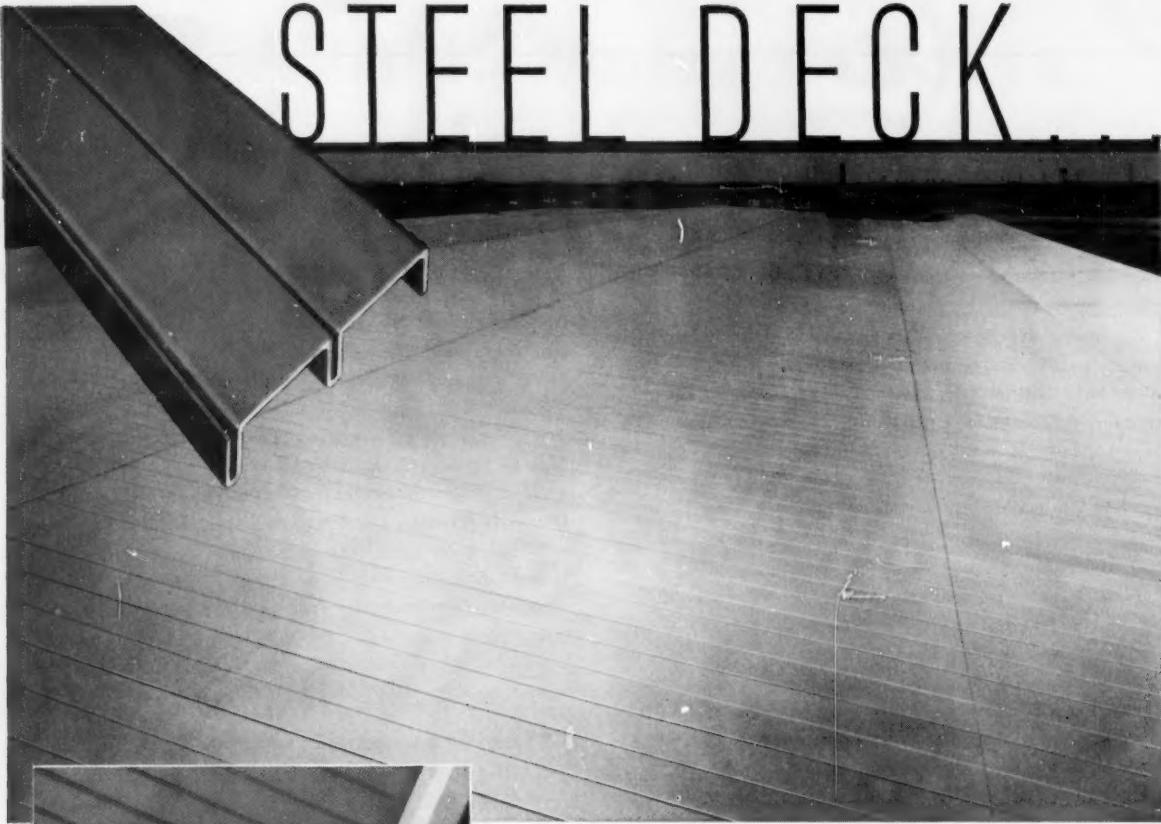
Several news accounts concerning the A.G.C. grew out of the midyear meeting of the Governing and Advisory Boards in St. Louis Sept. 27-29. The A.G.C. survey of prospects in the construction industry for the next six months, announced on the eve of the midyear meeting, was carried throughout the country by the wire services and received gratifying treatment in newspapers from coast to coast. Naturally, the favorable outlook for the construction industry revealed by the survey made good economic news for the public, and the press generally recognized it as such.

Similarly, the report of the managing director to the midyear meeting was widely and prominently publicized in the nation's newspapers. So were news accounts of some of the actions taken at the St. Louis meeting. In all, hundreds of press clippings have poured into the national office from over the country as a result.

More recently, the testimony of A.G.C. Vice President George C. Koss before the President's Advisory Committee on a National Highway Program on Oct. 8 received the principal "play" in many accounts of the hearings.

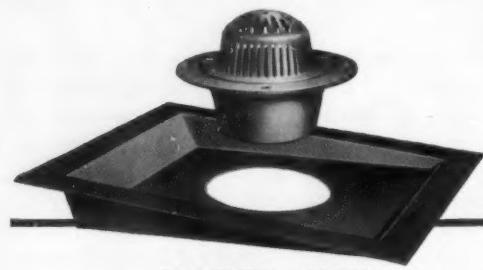
Numerous favorable editorials referring to the A.G.C. appeared in connection with these news accounts as well.

STEEL DECK



BUILT-UP SADDLES ELIMINATED

Built-up saddles are eliminated in Steel Deck Roofs. Purlins can be set to create valleys at sump locations in the drainage area. Steel Deck can be warped to conform. No additional deck plates are required—no cutting, fitting or bending necessary.



SUMP RECESSES and SUMPS

Mahan Steel Deck can be furnished to fit any roof pitch. Mahon Cast Iron Sumps can also be furnished for 4", 5", and 6" conductors.

SAFEST, because it's STEEL... MOST PRACTICAL, because it's LIGHT WEIGHT!

New steel deck roof construction methods and new type vapor seal provide effective safeguard against pitch seepage under extreme fire conditions. Now, more than ever before, Steel Deck stands out as the SAFEST and MOST PRACTICAL roof deck material available—why? . . . because it is STEEL, and because it is securely welded to the roof supporting structure. It's the most practical material to use because it's light weight . . . and it's the most logical material to use because it costs less. Steel Deck's light weight, and the fact that it can be insulated to the exact degree to meet local requirements permits substantial savings in the supporting structure—total dead roof load will prove to be less than any other type in any given locality. Mahon Steel Deck is available in Galvanized or Enamel Coated Steel . . . stiffening ribs are vertical—no angular or horizontal surfaces where troublesome dust may accumulate. Mahon Enamel Coated Steel Deck has a bonded finish baked on at 350° F. prior to roll-forming. See Sweet's Files for complete information including construction details and Specifications, or write for Catalog No. B-55-A.

THE R. C. MAHON COMPANY

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

Manufacturers of Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms; Insulated Metal Walls of Aluminum, Stainless or Galvanized Steel; Insulated Metal Wall Panels; Rolling Steel Doors, Grilles, and Automatic Underwriters' Labeled Rolling Steel Fire Doors and Fire Shutters.

M A H O N

THE CONSTRUCTOR, NOVEMBER 1954

»THE tremendous growth of the construction industry during the postwar years is focusing the industry's attention more and more upon one need that cannot be met in terms of materials and equipment: manpower.

General shortages of technical personnel in various fields important to national defense and scientific development have been haunting the country during the past few years of rapid technological advances. But nowhere, perhaps, can restrictions on the availability of trained engineering personnel and skilled workmen have a more pronounced effect on the economy than in the giant construction industry, which is charged with the design and construction of all the facilities that are essential to the economic growth and civic progress of every community.

Realizing that if the potentials for the future are to be attained, the reservoir of trained manpower must also be continuously expanded, construction leaders are directing efforts toward strengthening the foundation of the industry in the education field.

A.G.C. Committee Findings

The Associated General Contractors of America, whose chapters and branches have engaged in increasing educational activity in many parts of the country during the past few years, has launched a program of pumping

Industry Leaders Move to Expand Education for Construction Field

- Seek to Remedy Shortage of Technical Personnel
- New A.G.C. Committee Charts Course of Action

more emphasis into this movement.

An exploratory meeting was held in September of the newly created A.G.C. Education Committee at the midyear board meeting in St. Louis. One of its most obvious aims is to attract more young men into the field of civil engineering. Among conclusions of the committee were that:

- Chapters and branches should give serious consideration to the establishment of local education committees.
- Means be considered of developing and disseminating material describing opportunities in the construction industry, to be tied in with activities of the chapters.
- The A.G.C. program calling for summer employment of student engineers should be continued, and possibly include instructors and professors who could be kept abreast of modern procedures.
- Construction courses of engineering colleges should supplement, and not replace the basic civil engineering courses.

(Continued on following page)

A.G.C. Active in Education

While the launching of an Education Committee is a new activity by the national association, the number of A.G.C. chapters and branches which have undertaken educational programs has expanded rapidly in recent years. Their activities cover many fields, including:

- Endowment, in at least one instance, of an engineering college.
- Establishment of construction courses in engineering curricula, in cooperation with various colleges and universities.
- Establishment of various scholarships and student awards.
- Many chapters sponsor special programs in cooperation with colleges and universities covering such subjects as management, training of superintendents and foremen, accident prevention, and personnel.
- The furnishing of instructors and speakers from industry.
- Summer employment by contractors of engineering students and faculty members.
- Vocational guidance offered the high school students.
- Sponsorship of A.G.C. student chapters, and cooperation with student chapters of the A.S.C.E.

The national association, as a policy, for several years has supported efforts to raise the standard of salaries for engineers to attract more competent men to the field.

Apprentice training programs have been sponsored both nationally and locally, in which many chapters and members are active. Some A.G.C. member firms contribute scholarships in engineering schools.

(THE CONSTRUCTOR has published, from time to time, articles describing educational work of A.G.C. chapters and branches, and will continue to publish stories of meritorious activities in this field. The July 1953 CONSTRUCTOR published results of a survey of educational activities by chapters, which soon will be brought up to date.



The Colorado Contractors Association, A.G.C., provides eight scholarships for aspiring heavy and highway engineers in the Colorado A & M College and the University of Colorado. Young men are selected for their interest in the work, some past experience, active participation in extra-curricular activities, distinction in scholarship, personal qualities and on the basis of need.

Scholarship holders for the 1953-54 year, shown above, are Phillip C. Pratt, A & M College; Donald W. Danielson, Addison F. Smith, and James M. Coffey, University of Colorado; Deryl W. Gingery and Gerald B. McRae, Colorado A & M; Robert J. Warren, University of Colorado; and James M. Bell, Colorado A & M. Four of the students are repeat winners in the program which was expanded last year to include eight scholarships.



(Continued from preceding page)

- The A.G.C. should continue to support the student chapter program of the American Society of Civil Engineers, and consider methods to either aid, or have absorbed the A.G.C. student chapters which exist.

The Education Committee will work "extremely close" with the A.G.C. Public Relations Committee and the Apprenticeship Committee, Chairman Dwight W. Winkelman, Syracuse, N. Y., indicated. (The Public Relations Committee has been considering the

Top left: Clyde O. Faulk (second from right), manager of the Associated Contractors of New Mexico, A.G.C., which has awarded three civil engineering scholarships for this school year, visits highway project with Harlan Gibson (extreme right), graduate of Espanola High School.

Center: Eddie Gonzales, another scholarship holder, from Santa Fe High School, tries out controls of a roller.

possibilities of meeting demand for basic information about the industry in the form of teaching materials for high schools.)

Michigan Program Commended

The committee commended highly the educational program of the Michigan Road Builders Association, A.G.C., and "seriously urged" all other A.G.C. branches and chapters to consider programs along the same lines.

Started as a vocational training course in highway surveying to provide technicians for the Michigan State Highway Department, this program also is resulting in more young men pursuing an engineering education. (See story on page 26.)

The committee felt that work of the Engineering Manpower Commission is proving beneficial to the civil engineering profession and the construction industry, and that the association should continue to participate in its program. This group consists of three members from each of the six engineering societies.

In its initial review of the various

Some A.G.C. firms also have education programs. Here, Hugh Pendleton, an engineer of Dravo Corp., Pittsburgh, congratulates 12th grader Robert Miller (right), who built working model of a canal lock, and 11th grader Albert Saxman, whose model demonstrated air conditioning, winners of the firm's engineering awards at a school science fair.

Dravo also maintains an annual \$12,000 scholarship program in cooperation with Cornell, Lehigh and Pittsburgh Universities, and Carnegie Tech.

» NOTABLE among industry programs in the educational field is that of the Carolinas Branch, A.G.C., which spearheaded an endowment drive to establish a construction curriculum at North Carolina State College, and has worked closely with the college for several years.

Although the students study many subjects fundamental to civil engineering, a special series of courses in the third and fourth years provides for specialization in the contracting field. The junior year includes estimating procedures, cost studies, and preparation of bids for an actual project. The senior year covers planning and organization, including project analysis, plant layout, equipment requirements, and the scheduling of construction operations.

"Live" project plans and specifications are provided by architects and engineers, and "bids" are compared with actual bids. Future plans are to climax the senior year studies with an actual project.

The story of this program is best told in the words of *Statelog*, pub-

(Continued from page 24)

industry activities in the education field, the committee also took cognizance of the new Committee on Education and Training of Highway Engineering Personnel which has been established by the Highway Research Board, and to which an A.G.C. representative will be named.

Engineer Graduates Decline

The serious nature of the need for revitalizing engineering education is reflected in graduation figures for recent years, which Mr. Winkelman cited in his report:

In 1952, civil engineer graduates, other than military, totaled 23,900. This figure dropped to 17,200 in 1953, then to 11,200 in 1954, and is expected to fall to 10,000 in 1955. It is anticipated that 16,600 will be produced in 1956 due to increases in enrollment and a leveling off of military needs, and that the number of graduates will rise thereafter.

Mr. Winkelman attributed the current decrease in large measure to the publication by the U. S. Department of Labor in 1950 or 1951 of a pamphlet covering many vocations and professions and circulated to all high schools, which indicated that opportunities in civil engineering were poorer than in other fields.

Carolinas Education Project Draws Praise

lished by the college (May 1954 issue), as follows:

"Some 1,100 general contractors who do construction in North Carolina have invested over \$35,000 in the Engineering Foundation of State College this year—to develop future leaders for their industry and to insure its maximum service to the nation.

"This is a record investment for one year since the industry initiated its programs with the Foundation seven years ago—through the former Carolina Road Builders Association in 1947, and the Carolinas Branch of the Associated General Contractors of America in 1948."

Course Termed Unique

"Unique in the nation, the new construction curriculum at N. C. State was conceived in 1949 by the Carolinas Branch of the A.G.C., largest chapter of the organization in America.

"The idea of a course dealing with both the technical and managerial problems of construction was presented to the college by the Educational Activities Committee of the A.G.C., composed of leading contractors, equipment distributors, and material suppliers.

"Agreeing with the proposal, the college suggested the curriculum could be supported through the Engineering

Foundation. The N. C. Engineering Foundation is a non-profit association of engineers, industrialists, contractors, and other business men working to expand North Carolina industry and raise living standards by supporting engineering teaching, research, and extension at State College.

"Having helped establish the unique construction course, the educational committee of the Carolinas Branch of A.G.C. now works closely with the college, conferring on any revisions or additions that might make the course even more effective.

"Designed largely by and completely for the construction industry, the course is offered by the Civil Engineering Department in the School of Engineering, but is a distinct and separate four-year curriculum leading to a construction degree in Civil Engineering.

"It now prepares young men and women not only to serve the industry as competent construction engineers, but also to face problems of management, labor, organization, and finance.

"And therein lies the whole purpose of the industry's investment in the N. C. State curriculum—to create engineers who know construction from A to Z, from estimates and bids to equipment and safety, from materials and supplies to plans and specifications."



James G. Barlow, Lenoir, N. C., and Thomas F. Smith, Morganton, N. C., receive awards from Hubbard L. Sullivan, manager of the building division, Carolinas Branch, A.G.C. The presentations are annual to two seniors in the construction curriculum, North Carolina State College School of Engineering, for outstanding achievement.

Michigan Program: More Engineers, Students

»THE education program of the Michigan Road Builders' Association, A.G.C., which was praised by the new A.G.C. Education Committee, was started in 1953 in cooperation with the State Highway Department and the University of Michigan as a means of providing needed technicians for the highway department.

The association underwrites about one-half the cost for each accepted high school graduate to attend a vocational course in surveying at Camp Davis, Jackson, Wyoming. (Total cost this year was about \$300 per student.) The university's Department of Civil Engineering sends a general notice to all high schools in the state announcing conditions for enrollment, and interested students contact one of the three sponsors.

Those accepted must apply to the university for enrollment in the class (Camp Davis is the Rocky Mountain station of the university where civil engineering students are instructed in advanced surveying and geology); apply to the highway department for employment as Engineer Aide B; take the civil service examination for that classification, and be among the top 50 applicants in grades for this examination. The Civil Service Commission granted the highway department permission to start the trained technicians successfully completing the course at two stages above the normal starting salary. This means that they start at about \$268 a month.

Engineering Credits Given

Those students who desire to pursue an engineering course at either the University of Michigan or Wayne University following successful completion of the summer course are given seven academic hours of credit at either institution. (The variance of the instruction order at Michigan State and Michigan College of Mining and Technology requires that some changes must be made, and it is expected that objections of these institutions will be settled.)

During the past summer the Michigan Road Builders' Association provided transportation for all students on a week-end trip through Yellowstone National Park and an afternoon trip to Palisades Dam which is under construction in southeastern Idaho.

Results of the program, according to C. J. Carroll, executive secretary of the association, have included by

products that are beneficial to the industry as a whole. He states:

"A by-product of the course has been the decision of 50% of the students to enter an engineering college in Michigan or elsewhere. The students of this group have the added aid of using the camp as a training ground for the transition from a high-school student into a college or university student. This difficulty has been blamed for many of the failures experienced by college students during their freshman year."

In 1953, of the 32 trained in the program, 16 entered colleges, and all

but one of this group returned to work for the highway department this past summer. Of the 16 who chose to work with the department in 1953, twelve are still with the agency, two are on military leave and one resigned.

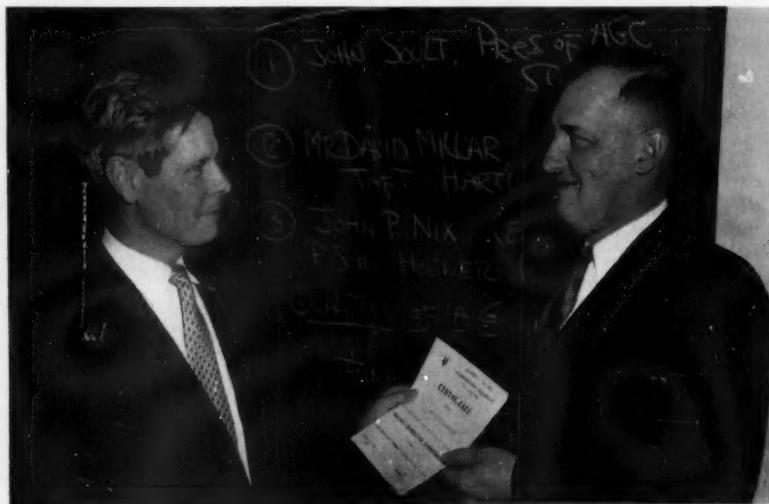
This year, 46 students successfully completed the course, of whom 28 announced intentions to enroll at a college, 17 now are working with the highway department, and one is working with a county road commission. Ten of those entering college spent several weeks with the department between the conclusion of camp school and the opening of the fall term.

Students finishing the course have entered 15 different colleges.



The popularity of a supervisors' training course sponsored by the A.G.C. of St. Louis and the University College of Washington University is indicated in the photograph above, which shows Robert W. Murch, Murch-Jarvis Construction Co., presiding. The course included 30 hours of instruction, was administered by Prof. Robert Oswald of the Washington University School of Architecture.

Below, John Soult, president of the A.G.C. of St. Louis (left), presents certificate of completion to Waldon Fahrmeier, carpenter foreman, one of 200 out of 275 enrollees who attended no less than 85% of 13 sessions.



» THE OPPORTUNITIES for civil engineers in construction are greater today "than at any time in the history of our country," Dwight W. Winkelman, Syracuse, N.Y., past president of The Associated General Contractors of America, told the Junior Member Conference of the American Society of Civil Engineers last month.

"These opportunities can lead to the personal satisfaction of having had an important part in the creation of facilities which serve the people and improve our lives, and to gratifying monetary awards," he told the student-engineers taking part in the A.S.C.E.'s annual convention in New York City, Oct. 18-20.

Besides the need of more engineers in consulting work, design and research, and government service, it is equally important that there be "thoroughly trained and competent men entering into the management of the construction firms which actually construct those facilities which are vital to the progress of the country.

"One illustration will serve to outline the trend of my thinking," he continued. "The President has dramatized our highway needs by speaking of a \$50 billion program. For investment of such magnitude, we should have research to learn how we can design better. It will take well-

'Challenge to Engineers'

Construction presents a challenge to young engineers, Carl B. Jansen, A.S.C.E., president, Dravo Corporation, Pittsburgh, A.G.C., told the Junior Member Conference of the American Society of Civil Engineers in New York City, Oct. 18.

"A challenge is an invitation to engage in a contest, and the contest I wish to discuss . . . is the engineer's struggle with the forces of nature as involved in all phases of the construction industry," he said.

Mr. Jansen related some of his experiences as an engineer in the construction industry. He described the magnitude of the industry and its operations, and concluded:

"If you enjoy seeing the result of your work grow beneath your hands, and if you glow with pride over the completion of a structure—any structure—in which you have had an important part, construction will give you a lift that you cannot get elsewhere."

Opportunities for Engineers in Construction

- Future Brighter than Ever Before, Winkelman Tells Students

trained men of vision to conceive and design the projects which will fulfill our needs. And it will also take well-educated and experienced men in construction companies who can carry out that construction program with a maximum of efficiency and economy so that the public receives the maximum value for its investment in the construction."

There are more opportunities in store for the young engineer in construction when the size and importance of the industry is considered. Current estimates are that more than \$50 billion will be spent on construction this year, with more than \$36 billion of this figure going into new construction, Mr. Winkelman stated. This will amount to \$1 in every \$7 of the gross national product and will mean that construction will again be larger than the value of agricultural production.

Other reasons for the need of more engineers in construction include, he said:

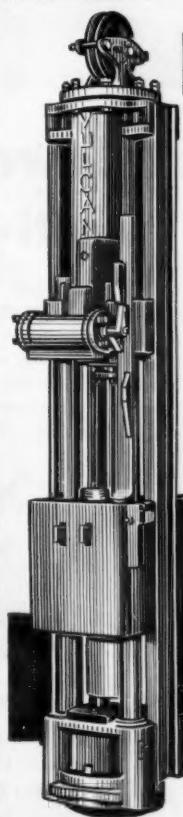
- Great strides in engineering research and conception of projects to fulfill their purposes.

- Improvements in design.
- Better equipment and machinery.

"Qualified and competent engineers are essential to construction firms if the operations are to be carried out efficiently and economically," he added. "My understanding is that the need for engineers in the construction industry is about one-half the number of annual graduates."

In former years many contractors had little formal education and had to gain their experience by working at one of the trades and becoming successful through hard work, initiative and imagination.

"The exacting requirements of modern, efficient construction operations still require lots of hard work, initiative and imagination," he continued, "but they also require a sound understanding of engineering."



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THE CONSTRUCTOR, NOVEMBER 1954



» THE U. S. MARINE Corps this month proudly presented to the American people its greatest symbol of heroic achievement—the long-awaited war memorial of the flag-raising atop Iwo Jima's Mount Suribachi.

Cast from bronze in monumental proportions, the 100-ton statue is envisioned as a permanent shrine to the American fighting spirit, and that of free people everywhere.

Dedication of the memorial was

Pictures on this page show workmen assembling and putting into place the huge statue, granite work going up around the base (below), and the finished work overlooking the nation's capital (upper right).



Iwo Jima Memorial Is Permanent Symbol of U. S. Fighting Spirit

Nov. 10, the 179th anniversary of the Marines. The figures stand on a gentle hill bordering Arlington National Cemetery in Virginia, and overlooking the Lincoln Memorial, the Washington Monument, and the Capitol Building across the Potomac.

Created by Sculptor Felix de Weldon, the statue was inspired by the famous battle picture taken by Associated Press photographer Joe Rosenthal. The work, nine years in the

making, was begun in scale by Mr. de Weldon in 1945, when he was on duty with the Navy. He later constructed a life-sized model, a larger one in limestone, and finally this one in bronze.

Site work at the memorial's grounds, including grading, seeding, and the construction of the encircling roadway, was done by the Charles H. Tompkins Co., A.G.C., Washington, D. C. Foundation work was by Victor R. Beauchamp, Inc., also of the city.



A.G.C. Affiliated Units Make Up Backbone of Sponsored Reserves

- 59 Organized by Chapters; 16 on Active Duty
- Recent Survey Gets at Root of Program's Weak Spots



Members of the 437th Engineer Construction Battalion, sponsored by the A.G.C. of Minnesota, are engaged in constructing a 50-ton tank bridge during summer maneuvers at Camp McCoy, Wisc. Lt. Henry Pomije, right, is checking work of Sgt. Russell Hovelson, center, using air hammer, as Sgt. Ignatz Kuntz looks on.



(U. S. Army photos.)

Bridge work progresses as Lt. Roy Engstrom, center foreground, inspects work of M/Sgt. Harold Vollmer, on right, using drill and Cpl. James Jordahl, at left, using air hammer. Men are from the 437th Engineer Construction Battalion, sponsored by the A.G.C. of Minnesota.

» THE ASSOCIATION'S Army Affiliation Program, begun seven years ago, continues to make up the bulk of the Corps of Engineers sponsored reserve construction and aviation battalions and groups.

Today A.G.C. chapters are sponsoring 59 units in which each officer and enlisted man is specifically qualified for his military assignment by his civilian work. Out of the total number, 16 units are on active duty, including eight overseas, with the remaining 45 units in the active reserve.

Prove Valuable to Army

The 59 A.G.C. units represent about half of all those sponsored by industry in the Army Affiliation Program. These units have provided an effective method by which the Army Engineers and the construction industry could cooperate in providing engineering construction reserve units when needed.

Some of these units have established outstanding records in Korea and others have served elsewhere overseas and in the United States with distinction. Still others have been praised by the Army for setting good records during summer training.

Army Asks for Survey

Since the Korean truce 17 A.G.C.-sponsored units have been discharged from service or disbanded for other reasons. At the suggestion of the Army, the A.G.C. has conducted a survey to try and determine the main obstacles being encountered by the units. On Oct. 28 the association presented the following progress report to Army officials based on the results of the survey:

Unit Strength. As a whole, the unit strength of the various groups is satisfactory with officers usually at maximum strength, but with enlisted personnel lagging in most cases.

Morale. The morale in most units is reported to be very good generally, though it is hard to evaluate accurately the "esprit de corps" of individual groups since the commanding officers use different terminology in expressing morale level.

Attendance. Average attendance is generally satisfactory, but summer training camp exercises present a problem for unit members employed in construction. It is hard to take time off from work to attend camp in the summer, officers and men complain.

Problems. The biggest problem facing most affiliated units is the recruiting of new enlisted personnel and maintaining adequate strength. Also, some units are complaining about poor meeting facilities, including small quarters and inadequate supplies and equipment.

Out of the 45 units in the active reserve that were surveyed, 38 responded and gave suggestions designed to instill more interest in the affiliated units program and induce more enlisted reserves to take an active part in the program.

A.G.C. Recommendations

Below is a list of suggestions and recommendations from A.G.C. units submitted by the association along with the progress report for consideration by the Army. These suggestions, it is hoped, will step up interest in the reserve units:

- Send selected personnel elsewhere for advance and/or specialized training that cannot be otherwise taught in the unit.
- Make more training equipment available to unit personnel.
- Stabilize administration regulations and procedures.
- More assistance from local and national A.G.C.
- Stagger summer camp exercises for personnel.
- Place units on "early ready" list so more drill periods may be executed during the year.
- Increase allowable strength of units to offset constant transfers and resignations.
- Cut down on excessive paper work.
- Permit personnel to make their own travel plans to summer camp, if they wish, so that they may take their families to nearby areas.
- Allow men to miss one camp out of three or four without penalty.
- Make it mandatory by law that discharged veterans become members of active reserve units. (Such a measure would swell the ranks of reserve engineer construction battalions.)
- Interest pre-draft youths who can be prepared for Army service and work off reserve obligations at the same time in affiliated units.
- Schedule summer training with similar regular Army units.
- Or, change summer training to fall to make use of best part of construction season.



Members of the 951st Engineer Aviation Group, sponsored by the Nashville Chapter, A.G.C., survey a portion of an airstrip which they rebuilt during their annual 15-day active duty training at Fort Benning, Ga. Shown from left to right, Sgt. John H. Surber, Major Sam E. Shelby, and Sgt. Joseph D. Drumright.



(U. S. Army photos.)

The 372nd Engineer Construction Group, Headquarters and Headquarters Co., sponsored by the A.G.C. of Iowa and the Master Builders of Iowa, A.G.C., pose outside of barracks during a two-week training period this summer at Fort Leonard Wood, Mo. They are left to right:

Front row—Sergeant First Class Phillip C. Tiedeman, Cpl. Reece B. Allen, SFC Peter T. Wiseman, Sgt. Edwin W. Arbin, Sgt. Orville D. Toler, and Sgt. Doyle D. Jenkins.

Middle row—Sgt. George P. Clearman, SFC James P. Nicholson, Sgt. Harold Ro Hickman, Cpl. Lowell E. Ellis, Cpl. Dean V. Stark, and Master Sergeant Robert J. Shoning.

Back row—Lt. Lewis Castle, Sgt. Berry Breeden, Lt. Col. Harvey R. Sexauer, group commander Col. Paul Bolton, Maj. John A. Gillotti, Maj. Leonard B. Amick, Maj. William R. Silvers, Lt. Edward L. Carr, Warrant Officer (J. G.) Gerald Westwick, Maj. Robert A. Huntington, Lt. Roy E. Johnson, Capt. Donald V. MacFadden, and Lt. Nick A. Colicino.

- Offer a more technical training program to hold interest of men.
- Keep units intact with a minimum of transfers.

Organization Meeting

The organization of the affiliated unit program began with a War Department meeting May, 1947. Top industrial, labor, and educational organizations were called together to

consider this program as "a vital phase of national defense."

Representing the construction industry at the conference were F. W. Parrott, then president of the A.G.C. and H. E. Foreman, managing director.

Eisenhower Present

Speaking for the War Department, General of the Army Dwight D. Eisenhower, then chief of staff, ex-



Members of the New York State Chapter, The Associated General Contractors of America gave a dinner last spring in Albany, N.Y., in honor of the 317th Engineer Group, an affiliated unit sponsored by the chapter. The picture shows chapter members and officers and men of the 317th attending the banquet.

plained the proposed affiliation program whereby industry-sponsored reserve units would utilize the technical skills in every civilian occupation in the event of a national emergency.

Following this meeting were a series of conferences between industry groups, including the A.G.C., and the Corps of Engineers which was delegated to carry out the Army program for affiliation with industrial units in construction, utilities, forestry and lumber, trucking equipment, and other allied industries.

A.G.C. Program Proposed

A tentative A.G.C. program which came out of these conferences called for the sponsoring of 100 construction reserve units by the association's chapters and branches. Though this goal was never reached, a year later, in May 1948, 79 chapters and branches had agreed to sponsor 84 units.

When the Korean hostilities broke out in June, 1950, many of the A.G.C.-sponsored units were called into active duty. Some remained in the continental United States to construct the necessary facilities for the expanding Army.

Other units were sent to Europe and the Far East. In Korea particularly, one of these outfits, the 439th Engineer Construction Battalion, sponsored by the Kansas Contractors Association, won fame for performing outstanding engineering feats under some of the worst physical conditions.

Korean Heroes

In the spring of 1951 the 439th Battalion, charged with keeping open a large sector of the main supply line near the important Wonju railhead, had been completing mile after mile of railroad and highway repair work when it ran into the wrecked Kilra Chon

railway bridge outside of Wonju.

The bridge was the last link in the rail line to Wonju and had to be restored so men and materiel could be delivered into the area by rail in advance of an expected Chinese offensive. Working under the worst conditions the battalion, led by its commanding officer Lt. Col. M. Clare Miller, McPherson, Kans., rebuilt the bridge in 17 days.

The most dramatic part of the job, the launching of a 260 ft. girder weighing 130 tons, was directed by Col. Miller from his radio jeep with the aid of field glasses.

Praised by Army

From here the 439th Battalion went on to rebuild another railroad bridge 835 ft. long over the Han River and a long highway bridge over the Som River.

Their feats did not go unrecognized by the Army. Secretary of the Army Frank Pace told the graduating class of Georgia Tech on June 11, 1951, that the 439th Battalion working at Kilra Chon did a job that "would have been a major engineering feat here at home."

Other affiliated units on active duty have had less spectacular, but equally important missions to perform for the Army and the Air Force. The accompanying pictures show many of these units either in training or on active duty with the Corps of Engineers.

As an example, the 844th Engineer Aviation Battalion, sponsored by the Memphis Chapter, A.G.C., while on active duty in 1953 compiled a construction record worthy of high praise in carrying out assignments in Ft. Huachuca, Ariz., Beale Air Force



(U.S. Army photos.)

In picture at left, troops of the 844th Aviation Engineer Battalion, sponsored by the Memphis Chapter, A.G.C., while on active duty at Ft. Huachuca, Ariz., pour concrete wall for rifle range target pit. At right, men of the 844th repair by hand taxi ways of Air Force base in Alaska. This battalion is typical of many A.G.C.-sponsored units that carry out routine but highly important assignments for the Army and Air Force at home and overseas.

Base, Calif., and at two air bases in Alaska.

The group, proud of its exploits, wrote a detailed and illustrated history for Engineer records. Headquarters Aviation Engineer Force, at Wolters AFB, Tex., reviewed the history and rated it "superior." The document, reviewers said, is "one of the best ever received by the director of historical services, Headquarters Aviation Engineer Force." The document was also rated "superb" from the standpoint of coherence, completeness of coverage and objectivity."

Other affiliated units, like the 316th Engineer Group (Construction), sponsored by the Akron Chapter, A.G.C., have written impressive chapters in military engineering during their summer training camps. The 316th, which held its camp at Ft. Knox from July 18-Aug. 1 this year, acted as headquarters group for four engineer battalions.

Chapters Sponsoring Units

A.G.C. chapters currently sponsoring affiliated units are as follows: Connecticut State Chapter, Shreveport Chapter, A.G.C. of St. Louis, Pennsylvania Builders Chapter, Akron Chapter, New York State Chapter, Nebraska Chapter, Fort Worth Chapter, Metropolitan Builders Association of New York City (2), Northern California Chapter (5), Dallas Chapter, Kentucky Highway Division, Nevada Chapter, Associated Contractors of New Mexico, A.G.C. of Iowa, Master Builders of Iowa, Carolinas Branch (2), Colorado Contractors Association, A.G.C. of Minnesota (3), Kansas City Chapter, A.G.C. of West Virginia, Cincinnati Chapter (2), South Texas Chapter, Houston Chapter (2), Detroit Chapter, Kansas Contractors Association, Seattle Chapter, Contractors of Western Pennsylvania, Mahoning and Shenango Valley Chapter (Ohio), Virginia Branch, Milwaukee Chapter, San Diego Chapter, Portland (Oreg.) Chapter, Arizona Chapter, Southern California Chapter, Nashville Chapter, A.G.C. of New Jersey, Louisville Chapter, Florida West Coast Chapter, Chattanooga Chapter, Kansas Chapter (Builders Division), Georgia Branch, Knoxville Branch, South Florida Chapter, Indiana General Contractors' Association, Memphis Chapter, and the Waco Chapter.

Slogan of the 423rd: Any Task-Anywhere



Officers and men of the 423rd Engineer Battalion shown on active duty at Camp Stewart are, left to right: Lt. James E. Sawyer, assistant operations officer, Albany, Ga.; Lt. Butler P. Hine, Jr., also assistant operations officer, Decatur, Ala.; Lt. J. P. Alsup, personnel officer, Cristiana, Tenn.; Capt. William H. Reynolds, supply officer, Montgomery, Ala.; Maj. Leonard H. Dicke, battalion commander, Chicago; Capt. Donald F. Ridgeway, operations officer, Massapequa, N. Y.; Capt. Frank A. Blake, Jr., adjutant, Kansas City, Kans.; Capt. Joseph H. Persons, motor officer, Starkville, Miss.; and Chief Warrant Officer James M. DiFrancesco, utilities maintenance officer, Richmond.

» "ANY Task-Anywhere." That's the slogan of the 423rd Engineer Battalion (Construction), sponsored by the Cincinnati Chapter of the A.G.C.

When this affiliated unit was called into service in September, 1950, two months after the outbreak of hostilities in Korea, the Army was rebuilding after postwar demobilization. The 423rd, typical of many A.G.C.-sponsored units that were called into active service, spent its time improving facilities at various Army and Air Force installations and building the physical foundation to support the growing military might.

The 423rd was mobilized in Dayton and sent to Ft. Belvoir, Va., for training. The following month it moved to Camp Rucker, Ala., where it trained enlisted men in basic and advance engineering. In 1951 the battalion moved up to North Carolina to take part in Operation Southern Pine.

After this, the group was sent to Ft. McClellan, Ala., for range rehabilitation and other construction work. The camp's commanding general awarded the 423rd a commendation for its work on this post.

Later, Company "B" of the 423rd was transferred to Camp Stewart, Ga., to carry out construction work, for which it was also commended by the camp's commanding general.

Early in 1952 the battalion, now reunited, was transferred to Ft. Benning, Ga., in time to take part in cleaning up the area after a severe tornado struck the nearby Robbins Air Force Base and the city of Warner Robbins. For aiding in this disaster, the 423rd received a commendation from the commanding general of Wright-Patterson Air Force Base in Ohio.

Later, the group moved back to Camp Rucker and furnished men to take part in Exercise Top Hat at Ft. McClellan in September, 1953. On Jan. 25, 1954 the 423rd was again ordered to Camp Stewart to construct tank training ranges.

With their unit's motto as a command, the men of the 423rd went about the uninspiring work of laying out the ranges over Camp Stewart's rugged terrain. Working long and hard the engineer group put up nine heavy caliber tank ranges in a little more than two months. In April, Third Army Commander, Lieut. Gen. A. R. Bolling, personally commended the officers and men of the 423rd for a "job well done."

This summer the outfit carried out more construction work at Camp Stewart, under the direction of its commanding officer, Maj. Leonard H. Dicke, Chicago.



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Mrs. Eisenhower Visits CP Center Donated by Building Industry

» WITH only a few minutes' advance notice, Mrs. Dwight D. Eisenhower in September made a "pop call" of an hour and a half to the United Cerebral Palsy Center in Denver which was donated by that city's building industry in what has been termed "one of the most amazing examples of labor-management teamwork in the nation."

The First Lady talked to each of the 96 children, visited the six classrooms, two therapy rooms, assembly hall, and a workshop where she was given a circular rug made by cerebral palsied teen-agers. She also inspected the office reception room and kitchen of the impressive building.

The center, which has been in operation for a year, was a gift of the Denver General Contractors Association (Associated Building Contractors of Colorado, A.G.C.), Architect Carl F. Bieler, subcontractors, suppliers, and unions of the A.F.L. Building Trades Council, who donated funds, materials, labor and services.



Mrs. Eisenhower surprises a class, accompanied by (left to right) Frank P. Spratlen, Jr., chairman of the board of directors of UCP of Denver; Alan Longstaff, board member and former state UCP president; and Joseph Layos, center director.

(Full story in March 1954 CONSTRUCTOR.) A.G.C. members also are active in the U.C.P. of Denver.

Many requests had been made of Mrs. Eisenhower to visit various institutions while in Denver, but her

schedule permitted an official call to only one. She said that she was happy that her home town is doing so much for the cerebral palsied.

Of the building gift, she said: "People do have a heart, don't they?"



First Lady helps conduct class . . .



And shows deep emotion as Vicki DeCastro, 8, tries to learn to walk.



Greets each of the 96 children . . .

Tamping — Here's a Le Roi-CLEVELAND back-fill tamper air-powered by Tractair, that gives you faster, easier tamping, better compaction, lower costs. This example shows how Tractair teams up with Le Roi-CLEVELAND Air Tools to save time, work, money.

Cutting asphalt pavement — with a Tractair-powered Le Roi-CLEVELAND paving breaker. Note, Tractair in background is equipped with a sweeping attachment. This is just another of many ways that Tractair can save you money.

Drilling trench — Easy holding Le Roi-CLEVELAND sinkers provide the fastest way of drilling rock. The air-power source is a Tractair, equipped with a front-end loader. Tractair is extremely mobile. It has a low center of gravity. It takes money-saving air power anywhere.



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**...the 10 in 1 machine that does
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Because Tractair is a combination 35-hp wheel tractor and 105-cfm air compressor, it is extremely versatile.

It lets you take air power wherever you want it — air power for drilling rock, tamping fill, breaking concrete, driving spikes and form pins, or pumping water.

When it is equipped with attach-

ments, you get added usefulness. You can load, back-fill, dig, sweep or hoist.

Although Tractair was pioneered and developed by Le Roi Company to do 10 basic jobs, its money-saving usefulness on costly, nuisance-type work is limited only by the user's imagination.

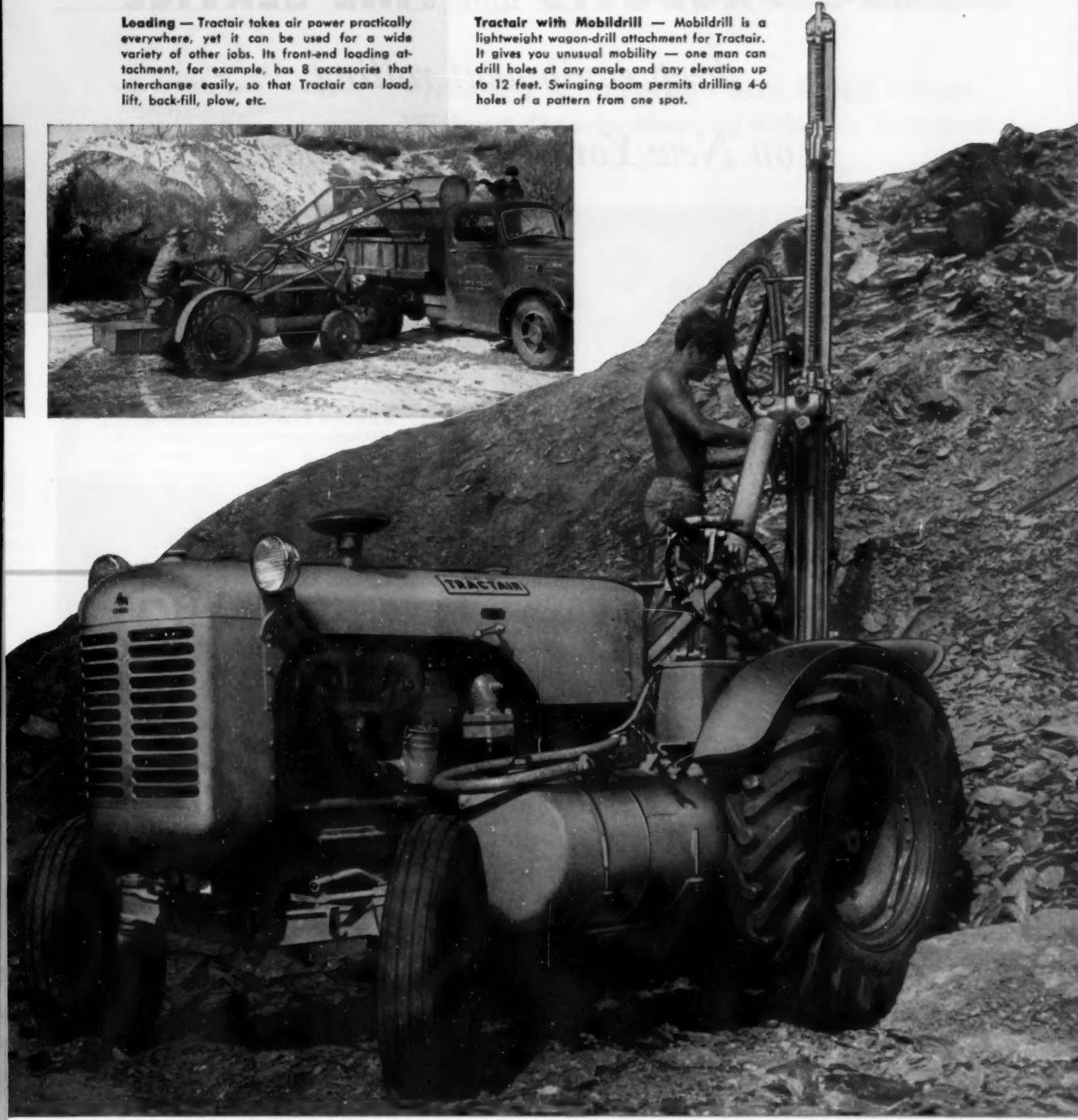
If you want to cut costs, get Tractair. Call your Le Roi dealer for a demonstration, or write us for further information.

LE ROI GIVES YOU MORE FOR YOUR MONEY

*More Utility!
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Leading — Tractair takes air power practically everywhere, yet it can be used for a wide variety of other jobs. Its front-end loading attachment, for example, has 8 accessories that interchange easily, so that Tractair can load, lift, back-fill, plow, etc.

Tractair with Mobildrill — Mobildrill is a lightweight wagon-drill attachment for Tractair. It gives you unusual mobility — one man can drill holes at any angle and any elevation up to 12 feet. Swinging boom permits drilling 4-6 holes of a pattern from one spot.



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Mount Vernon Contracting Co., S. A. Healy and M. A. Gammino Construction Co., Mount Vernon, N. Y., have combined to handle grading, paving, and construction of drainage facilities along a 1.89-mile section of the Thruway between Suffern and Ramapo, N. Y., and construction work on 5.26 miles of access roads. This joint venture also involves the building of five highway grade separation structures, one combination highway and railroad separation structure, two bridges, interchange facilities between the Thruway and Route 17, and relocation of the Ramapo River. Work includes the excavation of 2,264,000 cu. yds. of earth and rock.

THE New York Thruway is another tremendous and important project where Gulf tops the list of suppliers of petroleum products. Twenty leading contractors on the Thruway, with a total of 43 jobs, rely on Gulf to help keep equipment delivering top performance.

Mount Vernon Contracting Co., S. A. Healy and M. A. Gammino Construction Co., for example, know from experience that Gulf quality lubricants provide better protection against mechanical delays. And that Gulf fuels help them gain an extra margin of engine power and efficiency. Then too, they appreciate the helpful engineering counsel that Gulf provides, as well as Gulf's prompt delivery service.

Let us discuss with you how Gulf products and service can help you on your next job. They are available to you through more than 1400 conveniently located warehouses. Gulf Oil Corporation • Gulf Refining Company, 1822 Gulf Building, Pittsburgh 30, Pennsylvania.



» A NATIONAL Labor Relations Board majority, with members Abe Murdock and Ivar Peterson dissenting, has held that the picketing of a construction job by a union having a primary dispute with a painting subcontractor was an unlawful secondary boycott because the union failed to clearly indicate that its actions were not also directed at the other employers at the common site.

Earlier, the NLRB had unanimously ruled that signs carried by pickets of the painters' union stating, "This Job Unfair," were too broad in scope and did not restrict the dispute to the painting contractor.

A month later, the same union picketed the same construction project with signs stating, "R. H. Still is Unfair to Painters Local No. 1730, A.F.L."

The NLRB majority—all Eisenhower Administration appointees—held that, because of the earlier illegal picketing with signs referring to the entire project, it was not enough for the union to simply substitute the name of the primary employer for the words, "This Job," and that the union should have unmistakably notified the public that the picketing did not involve neutral contractors.

Text of Decision

The board stated, in part:

"Picketing at a common work situs, to be lawful, must be strictly confined to the primary employer involved in the dispute. If the record establishes that the picketing, viewed in the light of all the circumstances, was not so limited, but was directed also to the neutrals at the job situs, it is proscribed by the act. . . .

"When the picketing resumed in September, the sole change was a substitution on the picket sign of the name 'R. H. Still' for the words 'This job.' Such change, in the light of the prior picketing and the employees' apparent understanding as to the scope of that picketing, was clearly insufficient to apprise the employees that the picketing no longer extended to the neutrals in aid of Respondents' dispute with the primary employer. The burden was on the Respondent, which was responsible for initiating the unlawful picketing, to disengage the neutrals, by unmistakable and unambiguous measures, from the scope of its resumed picketing activities. This it manifestly failed to do.

"We are patently not requiring, as the dissent attempts to infer, that

Picketing Construction Site Ruled Illegal Without Clearly Naming Primary Employer

Respondent 'persuade employees of other employers to cross their picket line.' We are holding as stated above, that the change in the picket sign made by Respondent immediately after its unlawful picketing in August fell far short of informing the employees of neutrals that the scope of the dispute no longer included the secondary employers.

"Accordingly, we find that the September picketing by Respondent ex-

tended beyond the primary employer to secondary employers at the job situs. And, contrary to the Trial Examiner, we further find that the picketing obviously called for concerted action by the employees of the secondary employers. We conclude that Respondent violated Section 8(b) (4) (A) by its picketing on September 21 and 22, 1953, as well as by that which began on March 2 and August 11, 1953."

Farmer Denies NLRB Is Biased in Policies

» GUY FARMER, chairman of the National Labor Relations Board, recently spoke out in defense of board policies which he said were impartial—not pro-labor or pro-management.

Mr. Farmer made these remarks at a time when he and other Eisenhower appointees to the board, which administers the National Labor Relations Act, were under sharp attack from labor leaders for having a "management bias." He called these charges "propaganda," when he said:

"I have only this additional comment: The board has in recent months been called 'pro-employer'. I feel that it is my duty, in the public interest, to warn employers not to make the mistake of believing this propaganda. Any employer who violates the Act which we administer will continue to feel the full force of its sanctions.

"Candor compels me to say that I fear that much of the controversy concerning the NLRB stems from a subconscious attitude, shared by some unions and some employers, that this agency is a prize to be fought over and captured in order that it may be forged into an instrument, clothed with public prestige and authority, to be used to enhance the power and influence of the victorious group.

"Those who subscribe to this concept of the board consider impartiality a vice and count as against them anyone who is not completely biased in their direction. . . . I have said all along that impartiality would be the keynote of this board's administration, and I predicted months ago that adherence to principle would not be universally applauded. I see no occasion to change this prediction or to aban-

don this ideal. I shall continue to pursue it, and I am hopeful that unions and employers alike will eventually come to recognize that the interests of special groups are also best served by a policy of even-handed enforcement of the law."

Mr. Farmer, speaking before the National Association of Motor Bus Operators in Chicago, went on to describe the work of the board and to point out some of the things it does not do. He said:

- Congress, not the board, makes labor laws.

- NLRB has no authority to arbitrate labor disputes. The Federal Mediation and Conciliation Service does this.

- Formulation and implementation of national labor policy is the job of the President, his Secretary of Labor and the Congress—not the job of the board.

What the board does, he continued, is to administer the National Labor Relations Act, a single statute which incorporates essential provisions of the Wagner Act of 1935 and the Taft-Hartley Amendments of 1947.

"As administrators, we cannot be concerned with the wisdom of a particular statutory provision. The Congressional language and legislative intent bind us in our decisions, and we have only one obligation—that is to interpret and enforce the law as written and intended by Congress. Lest I be misunderstood, however, I should say at this point that, while I do not by any means regard the NLRA as a perfect law, I would not have undertaken to help administer it if I did

not regard it as being in the main a balanced, a workable and a wholesome statute. . . ."

Congress, as the democratic voice of the people, has struck a fine balance between the interests of capital and labor, Mr. Farmer continued.

"A labor board that conceives of itself as a missionary for capital, or a board with a pro-labor bias, would upset the balance which Congress has established."

There is the need for continuing the proper balance of power between conflicting interests in our domestic institutions, he continued. Democracy consists of the interplay and clash of opposing forces. The manufacturer wants more for his product, and the laborer more for his labor.

"The interplay of these forces is a healthy thing and must be given freedom to assert itself. . . . But we have long since abandoned the theory that complete and unbridled freedom for each of these groups to pursue its own course is either possible or desirable. We . . . recognize that some public intervention is necessary to protect the whole people from the disastrous results which would flow from jungle warfare between conflicting pressure groups."

He discounted Karl Marx's *Communist Manifesto* that class warfare is "inevitable." It is normal for capital and labor to have their differences, Mr. Farmer said.

"But the area of conflict is in fact small and they (capital and labor) have more interests in common than in conflict, the chief one being a mutual interest in maintaining volume production of goods and thus insuring plenty of prosperity for us all."

Recent appointments of new members to the Joint Board for Settlement of Jurisdictional Disputes are as follows: Fred R. Stevens, Stone and Webster Engineering Corp., Boston, and Thomas S. Keefer, E. H. Keefer and Son, Philadelphia, A.G.C. alternate members; E. T. Kelly, A.G.C. labor relations adviser, appointed regular member, replacing J. D. Marshall, A.G.C. executive director, who remains as board secretary; John J. McCartin, general organizer of the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry, who replaced Peter T. Schoemann, also of the union. R. J. Mitchell, The Trimble Co., A.G.C., Pittsburgh, also serves on the board.

A.G.C. Praised for Mason Training Program

• Association's Role Outlined to Bricklayers Convention

» THE PROGRESS of apprentices in the bricklaying trade has been "due largely to the cooperation of The Associated General Contractors of America, with the Bricklayers, Masons and Plasterers Union," W. F. Patterson, director of the Bureau of Apprenticeship, told the Union's convention last month.

Addressing the 62nd annual meeting of the international union in Cleveland, Oct. 13, Mr. Patterson praised the A.G.C. Apprenticeship Committee for its interest in local joint mason apprenticeship committees. According to the latest records there are more than 518 local committees throughout the country, and the A.G.C. group has conducted an extensive survey to determine how many of these are actively sponsoring apprentice training programs.

The A.G.C. committee, by its survey, hopes to re-activate as many as possible of the joint committees that are "lagging," Mr. Patterson said. Working with the A.G.C. on this project is the Structural Clay Products Institute.

Officials on Committees

H. E. Foreman, A.G.C. managing director, serves as a member of the Federal Committee on Apprenticeship, the national policy-recommending body to the Bureau of Apprenticeship, Mr. Patterson continued. He also praised Fred Fisher, Fisher Construction Co., Houston, for his work as a member of the Executive Committee of the construction industry's General Committee on Apprenticeship, another advisory group to the bureau.

Mr. Patterson also praised A.G.C. Executive Director James D. Marshall, current chairman of the National Joint Bricklaying Apprenticeship Committee, who he said has "served diligently and devotedly" to promote and improve apprentice training.

Work with Educators

Mr. Patterson told the labor leaders that the A.G.C. Apprenticeship Committee is also cooperating with the Labor-Management Relations Committee of the American Vocational Association in the promotion of improved training programs. Members of the

A.G.C. committee, he continued, have conferred recently with A.V.A. members to promote meetings between labor representatives and employers to improve instruction methods and develop definite programs to carry out this purpose.

He recommended that the officials holding these conferences consider the number of hours apprentices must spend in the classroom, and also the advisability of giving credit to apprentices based on their educational background. A fact-finding study of this kind by every national apprenticeship committee "would be extremely beneficial" to local vocational schools and those concerned with training apprentices, Mr. Patterson added.

A recent A.G.C. survey published in the July issue of *THE CONSTRUCTOR* showed that many key men in member firms started out as apprentices. Mr. Patterson quoted survey results that showed of the first 177 replies, 173 presidents, vice presidents, full or part owners of the companies began their careers as apprentices; and that 353 project managers, superintendents and foremen started as apprentices, also.

Constructor Cited

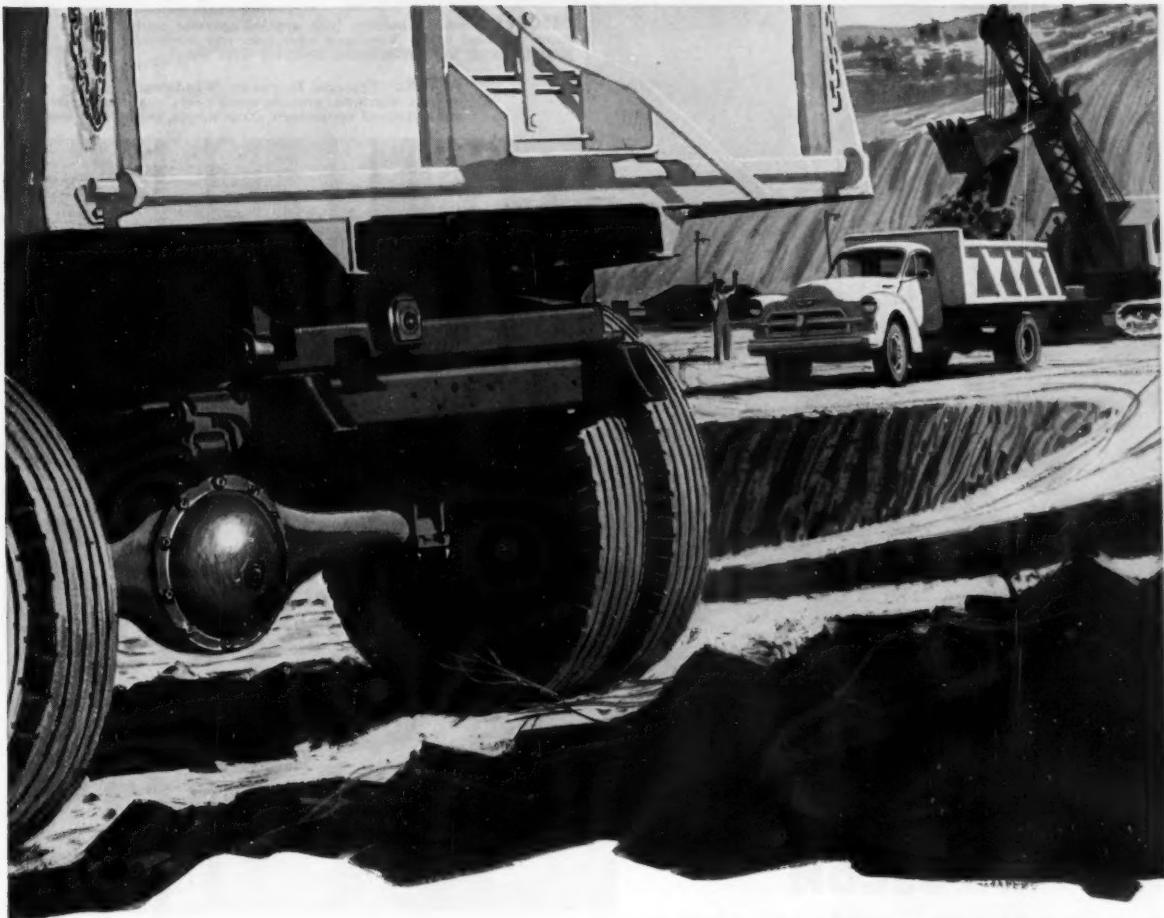
THE CONSTRUCTOR, Mr. Patterson continued, "has been extremely influential in carrying forward the construction industry's training program."

In looking at the construction years ahead, he said that the future "looks very bright." He concluded his remarks by saying:

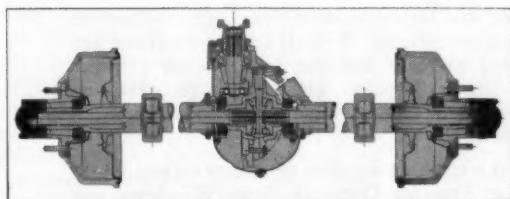
"The sustained gain in construction activity has been a major source of encouragement and stimulation to the nation's business as a whole. This stimulus has been widespread, affecting employment not only in the construction industry but in the steel, machine tool and many other industries.

"It is of paramount importance to prepare for the future by the training of apprentices to provide the skilled manpower required and to see to it that every worker on every level is sufficiently trained to enable him to keep pace with current developments.

"Preparation for tomorrow is a challenge that must be met by construction men today. I am sure you will not be found wanting."



GLUTTONS FOR PUNISHMENT—CHEVROLET TWO-TONNERS with HYATT BARREL BEARINGS!

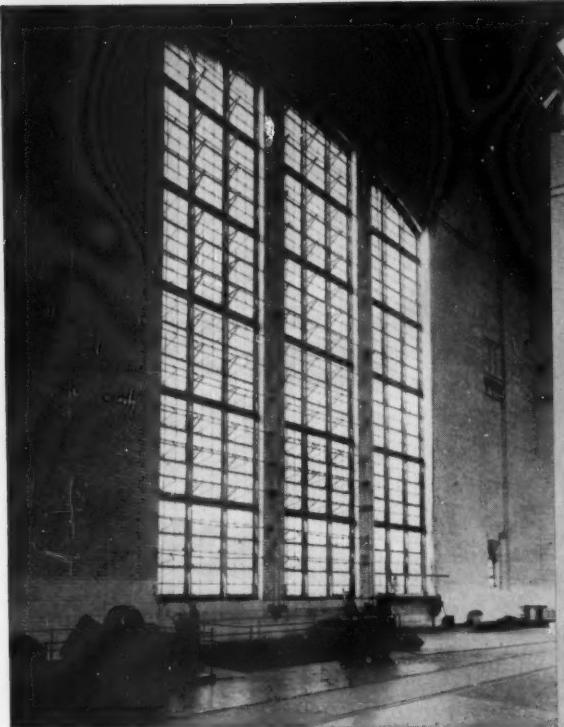


6 Barrel Bearings used in this Chevrolet 2-ton truck rear axle

Sheer stamina—the ability to "take it" year after year with minimum maintenance and maximum economy—has made this two-ton Chevrolet one of the world's most popular trucks. And in its rear axle—focal point for brutal punishment—you'll find six HYATT Barrel Bearings taking the brunt of it. Their ability to provide high load capacity with low friction—to automatically compensate for shaft deflection—has been conclusively proved in millions of miles of this troublefree truck service. If you have a similar bearing problem, take a tip from Chevrolet trucks—and hand it to HYATT Barrel Bearings—Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

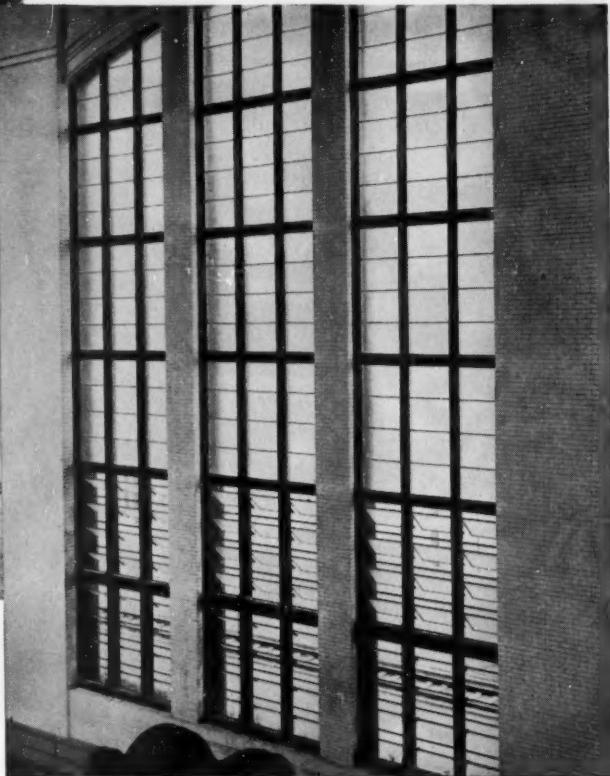


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BEFORE: Pivoted windows, with applied operator equipment on inner wall. Ventilator operation was inefficient; glass breakage and maintenance demands were severe.

AFTER: Truscon Donovan Windows, replacing older pivoted windows, provide trouble-free ventilator operation and improved appearance. Note simple, concealed operators.



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Power plants have special window problems. Equipment operates at high pressure. Burners gulp great amounts of air. Because of rapid air consumption, pressure variations occur. Windows must open and close rapidly to compensate.

This station formerly was equipped with pivoted windows. But, operator arms had largely failed. Ventilator control was lost. The solution was a new installation of Truscon Donovan Steel Windows.

Now, they can open and close ventilators rapidly and simultaneously. Air pressure is more precisely controlled. Operators are completely con-

cealed and protected against possible corrosion. Maintenance is substantially reduced.

These are large window openings. Subject to heavy windload. Rigid, heavy sections are needed to resist bending under wind pressure and protect against glass breakage. Truscon Donovan Windows have that needed strength of section.

What large-area window problems do you have? Using Truscon Donovan Steel Windows you can group great expanses of ventilators in attractive interior and exterior building elevations. Truscon window engineers will help you design specific applications. Write:

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A NAME YOU CAN BUILD ON

Architects-Contractors Committee Acts on Many Mutual Problems



Members and guests attending the national A.I.A.-A.G.C. Joint Cooperative Committee meeting Sept. 30 in St. Louis, above, are seated: Harry B. Tour, A.I.A., Knoxville, Tenn.; William Stanley Parker, F.A.I.A., Boston; Bergman S. Letzler, A.I.A., Louisville, Ky.; Max H. Foley, F.A.I.A., co-chairman, New York City; Frank F. Burrows, A.G.C. co-chairman, Belmont, Calif.; W. A. Snow, A.G.C. co-secretary, Washington; Theodore I. Coe, A.I.A. co-secretary; and P. D. Christian, Jr., A.G.C., Atlanta.

Standing: Bernard Rothschild, A.I.A., Atlanta; E. J. Wheeler, A.G.C., Cincinnati; Paul Schell, A.I.A., Pittsburgh; Robert Olp, Detroit; Walter L. Couse, A.G.C., Detroit; John Testman, A.G.C., Albuquerque, N. Mex.; George Long, Louisville Chapter, A.G.C.; John Sturgis, and Robert Pike, St. Louis.

» SEVERAL subjects involving relationships between general contractors and architects were considered and acted upon by the national Joint Cooperative Committee of The American Institute of Architects and The Associated General Contractors of America at its Sept. 30th meeting in St. Louis which was attended by 13 committee members and eight guests.

Specific actions taken by the committee included:

- Recommendation that adequate time limits be afforded general contractors for the preparation of bids, with time allowed corresponding to the size of the project. In case of an emergency which requires an unusually short time for bids, the furnishing of more plans and specifications was recommended to permit assignment of additional estimators to the project.

- Recommendation that both organizations consider active steps to encourage formation of more local A.I.A.-A.G.C. joint committees "in every locality where members of both organizations are available."

- Recommendation that both organizations consider issuing as soon as practicable standard amendments to the insurance provisions of the A.I.A. Standard General Conditions in line with suggestions of the A.I.A. and A.G.C. chapters in Michigan. The committee commended the Michigan

groups for their studies of insurance requirements to adequately protect the owner and general contractor and also recommended that other local A.I.A.-A.G.C. groups conduct similar studies of conditions in their areas.

- Rejection of the practice of some architects of including "catch-all phrases" in their specifications, and a suggestion that more emphasis be placed on Article II of the A.I.A. General Conditions which refers to such practice.

Specifications Checklist

The national committee also commended the Minnesota A.I.A.-A.G.C. Joint Cooperative Committee for its development of a standard specifications checklist and suggested that copies be made available to other local joint committees for study and possible adaptation to their areas. It was felt, however, that a standard on a national basis would be impractical because of diversified regional practices.

The action on insurance was taken after an explanation of proposed revisions in the A.I.A. standard documents by insurance representatives who reported adoption of the proposals by the A.G.C. of Minnesota and the Michigan chapters. Committee members concluded that more protection should be afforded the contractor and the

owner during construction of a project than now is available.

A request by refrigeration and air conditioning contractors that their work be considered as a separate and distinct trade was rejected as "not feasible and a division of responsibility that is not practical."

Acting on a request for a definition of responsibility in checking and approving shop drawings, committee members expressed the opinion that actual design of shop drawings is the responsibility of the architect, and dimensions on the drawings are the responsibility of the general contractor.

Other subjects considered or discussed included distribution of the booklet, *A Suggested Guide to Bidding Procedure* through local A.I.A.-A.G.C. committees, modular coordination, the government's lease-purchase construction program, maintenance by contract, and several individual problems and proposals submitted to the committee.

W. A. Snow, A.G.C. Building Division manager, reported that more than 40 local joint committees had been established and that many sent reports of their work to the national office. The national committee expressed the belief that much beneficial work is being done locally, and recommended that full reports of actions by the national committee be sent to each local group.

Modular Measure Conference Set by B.R.I.

• A.G.C. Among Sponsors of Research Project in December

» A FULL-DRESS conference on the modular coordination method of building will be conducted Dec. 9 at the National Academy of Sciences in Washington, D. C., by the Building Research Institute.

Sponsored by The Associated General Contractors of America, The American Institute of Architects, the Producers' Council, and other industry associations, the conference is expected to draw a large attendance of general contractors, manufacturers of materials, and architects.

Outstanding architects, engineers and producers will discuss the evolution of the method of using 4-inch modules in building construction, the impact on the design process of current trends such as prefabrication of components, and the value of the method in practice.

The contractors' point of view will be discussed by J. P. Caldwell, vice president of the J. A. Jones Construc-

tion Co., A.G.C., Charlotte, N. C., and James E. Coombs, president of Baker & Coombs, Inc., A.G.C., Morgantown, W. Va.

Federal School Funds Allotted

Allotments of the \$55 million appropriated by the 83rd Congress second session, for school construction in "federally affected" areas have been completed by the Department of Health, Education and Welfare.

Funds were reserved for the construction of new school facilities in 288 communities located in 40 states, Hawaii and Alaska, Commissioner of Education Samuel M. Brownell said, totaling almost \$45 million. The remaining \$10 million is for reimbursement of 95 communities in 30 states which used local funds to finance urgently-needed construction in areas

which have been crowded by federal activities.

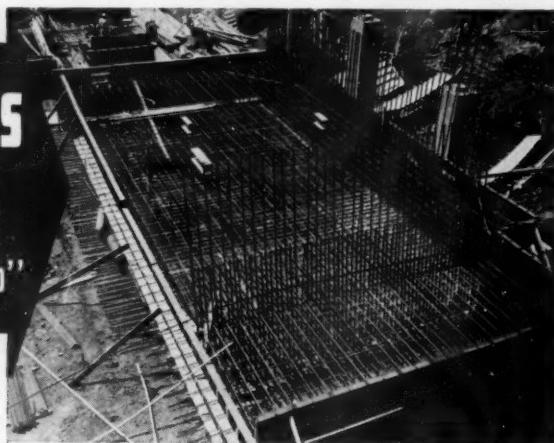
District Construction Manager

Large national engineering and construction company with headquarters in the midwest seeking graduate engineer with several years varied experience in the mechanical and building phases of construction to serve as construction manager of midwestern district. Position involves the supervision and direction of project superintendents on both building and mechanical type projects, including analysis of costs and methods relating to each project. There will be considerable travel. Experience as a district construction supervisor or project manager on several large projects is desired.

Persons qualified should submit a complete résumé stating experience, education and salary requirements. All replies treated confidential. Interviews arranged for qualified applicants.

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ASK Super Tandem owners about Super Tandem performance! One contractor produced 3/4" minus material at a rate of 228 to 310 tons per hour with average percent of crush 20%. On this job, maintenance costs on the Super Tandem were less than three-fourths of a cent per yard! Figure out what this kind of low-cost production will mean on *your* jobs!

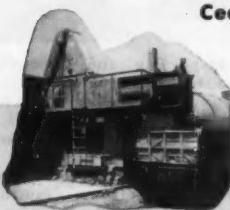
The Cedarapids Super Tandem is newly engineered for the extra high screening capacity that gives you a big advantage in any pit and is especially profitable where there is a high percent of fines or contaminated material.

Look over the features listed at the right, then ask your Cedarapids distributor to show you how you can apply them to your work for higher profits.

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- ✓ Quality construction of every unit cuts maintenance costs to the minimum, keeps plants operating all day every day to maintain your high production averages.



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Vibratory Soil
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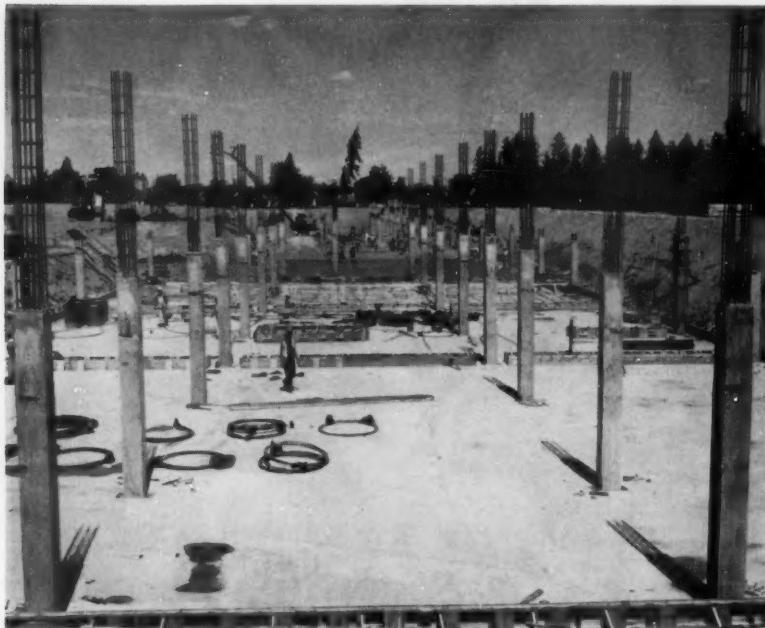
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Model G-60 6000-lb.
Bituminous Mixing Plant

Slabs Lifted on Reinforced Concrete Columns

- Employ Climbing Jacks, Tilt-Up Walls, Post-Stressed Slabs



Various stages of work are shown in three of the four units, above. Immediate foreground and adjoining section have basement floor poured and are ready for Strescon cabling. Note wood forms in place. Steel pans for the formation of waffle slab will be placed after cabling, electrical conduits just prior to pour.



Underside of the first waffle slab to be lifted. Steel pans used to produce the waffle effect can be seen still in place. Workmen are inserting key locks in columns. Slab was eased back on locks after picture was taken.

» A LIFT-SLAB method on reinforced concrete columns is being employed in the large North Town shopping center project in Spokane, Wash. and is believed to be the first such usage.

There will be a total of 18 lifts for the four units of the center, and 64,000 square feet of waffle-type slabs in the entire project, which is being constructed by H. Halvorson, Inc., of Spokane.

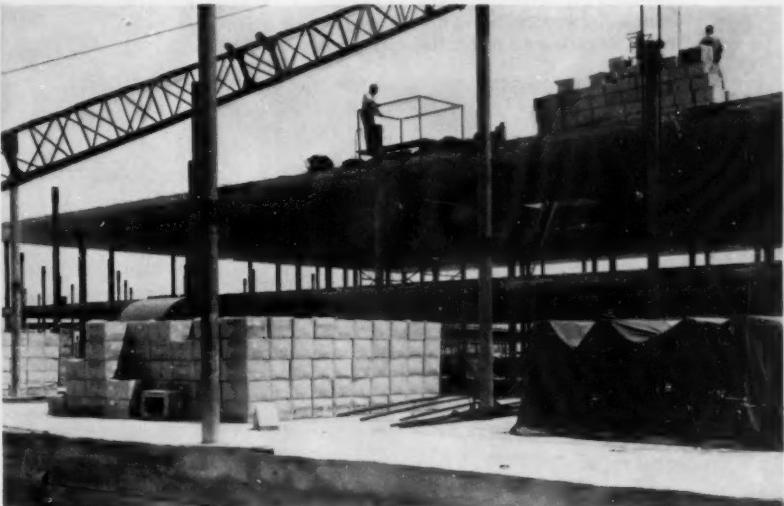
The project actually is employing several modern construction methods. The slabs, which require practically no reinforcing steel, are post-stressed with Strescon 9-wire cables. Precast, tilt-up walls also are being used, which require a considerable amount of reinforcing steel. The slabs are lifted on the columns by "climbing jacks," designed especially for the job by Vernon Welborn, consulting engineer of Las Vegas, Nev., and manufactured by Artistic Iron Works of Spokane.

The largest slab will be 96x120 ft. in size, weigh more than 500 tons, and will require 52 jacks to lift it on 20 columns. The columns are 16x16 inches.

Carleton Tollefson is the architect and Kenneth P. Norrie & Associates the structural engineers. Steel is being supplied by Bethlehem Pacific Coast Steel Corp.'s Seattle plant.



Shown inspecting the specially-designed jacks for lifting the slabs are, left to right: Maurice W. (Mac) McKnown, project superintendent; Emmett H. Nelson, Halvorson's general superintendent; Ernest H. Toll, owner of Artistic Iron Works which manufactured the jacks; and Vernon Welborn, consulting engineer who designed the jacks. Rex Smart, carpenter superintendent, looks on.



Modern methods and materials were used by Turner Construction Co. in five Radio Corporation of America buildings, covering 320,000 sq. ft., at Cherry Hill, N. J. Floors and roof were erected by U. S. Lift-Slab Corporation's method. Design includes 2½-in. porcelain enamel panels containing "foamglas" cellular insulation, acoustical treatment, air conditioning, glare-proof fluorescent lighting, movable walls and partitions. Smooth inner surface of panels is colored, outer surface corrugated.

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AFFILIATE: AMERICAN BONDING COMPANY OF BALTIMORE



NO TIME FOR DOWNTIME. Until this reservoir is completed, residents of Olathe will be paying premium rates for drinking water. That's why Contractor Lee Yerington says: "On this dam I need plenty of power with a very minimum of downtime, and that's exactly what I get with my INTERNATIONALS. Take that TD-24 pusher, for example. 3500 hours on the meter and it still has original rails and never has had a major overhaul."

"I needed durability ...my INTERNATIONAL'S delivered"

Contractor solves water shortage for Olathe, Kansas, with fleet of six INTERNATIONAL crawlers that never faltered in building a big dam and 160-acre reservoir

Water exporting business in Kansas City, Missouri, is due for a sharp slump due to the loss of 5,593 cash customers, the residents of Olathe, Kansas.

For many months past the thirsty population of Olathe has been supplementing the city's inadequate water supply by buying water by the tank car from Kansas City, but this condition is being rectified, and in a hurry.

The Yerington Construction Company, Parksville,

A TRAP FOR CEDAR CREEK is shown taking shape as the INTERNATIONAL TD-24 and B-170A scraper begins another loading cycle in the bottom of the new reservoir.



SOME BIG REASONS WHY earthmoving on this 450,000-cubic yard project moved at such a lively pace are apparent in this photograph: TD-24 speed that hauls heaped loads to the dam site at fastest traveling speeds. The positive rolling ejection feature of the INTERNATIONAL B-170A scraper spreads faster and completely cleans the bowl in the process.





Missouri, started construction of a new dam and 160 acre reservoir $2\frac{1}{2}$ miles west of Olathe, and early in 1955 the city expects to be out of the water importing business.

Lee Dell Yerington is using a total of 21 pieces of equipment including 6 INTERNATIONAL tractors and scrapers to move 450,000 cubic yards of dirt and 60,000 cubic yards of rock on this hurry-up project, and here's what he says about his earthmovers:

"I like my INTERNATIONAL equipment better than any other I have on this job—and for several reasons. I need plenty of power and plenty of durability and my IH crawlers deliver."

Discover for yourself what this contractor has learned about how INTERNATIONAL crawlers and equipment deliver outstanding power and performance when the chips are down. Just call your INTERNATIONAL Industrial Power Distributor for your demonstration today. He'll bring the IH equipment you need to your job site anytime so you can get the lowdown on the IH rigs that mean more profitable business for you from here on in.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

UPGRADE WITH A HEAPED LOAD presents no problem for the Yerington's TD-24 with matched B-170A scraper hauling a solidly packed payload of 21 cubic yards.



ONE OF FOUR TD-18As the contractor used to hold a 7,000-cubic yard daily production average on this job is shown dozing dirt for a small temporary reservoir. This structure will be used in conjunction with the small natural lake as a reservoir until the new reservoir is completed.



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Advisory Committee on Highways Hears Views on Eisenhower Plan

- Total Needs in 10 Years Estimated at \$101 Billion
- A.G.C. Testifies Construction Capacity Is Adequate

» THE DIMENSIONS of the nation's highway problem were explored last month in public hearings held by the President's Advisory Committee on a National Highway Program, appointed to consider means of carrying out President Eisenhower's proposal for a \$50 billion highway construction program over a period of 10 years, in addition to normal outlays for roads and streets.

The committee, headed by Gen. Lucius D. Clay, retired, expects to report its recommendations to the President in December. Mr. Eisenhower, in proposing a greatly expanded highway program to the Governors' Conference in July, said he wanted to submit "positive proposals" to the next Congress, which meets in January.

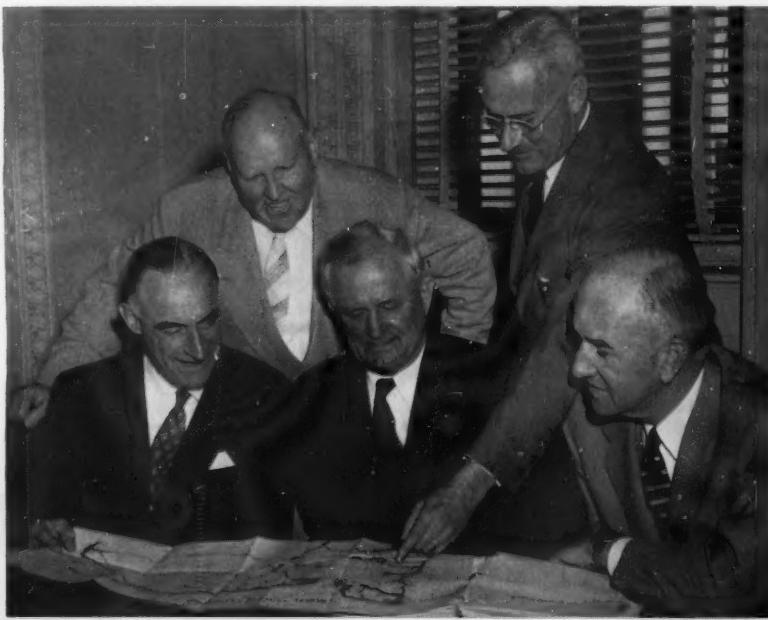
The committee conducted public hearings on Oct. 7 and 8 in Washington at which testimony was offered by 22 organizations concerned with high-

way development. Besides General Clay, who in private life is chairman of the board of Continental Can Co., the other committee members are Stephen D. Bechtel, president, Bechtel Corporation, A.G.C., San Francisco; David Beck, president, International Brotherhood of Teamsters, A.F.L., Seattle; S. Sloan Colt, president, Bankers Trust Co., New York, and William A. Roberts, president, Allis-Chalmers Mfg. Co., Milwaukee. All five committee members were present for the hearings.

Highlights of Hearings

As chairman, General Clay opened the hearings with a statement of the committee's purposes in which he outlined the problem of highway expansion. (Text in box on next page.)

Varied and sometimes conflicting views on the extent of highway needs and methods of financing them were



Wide World

Members of the President's Advisory Committee on a National Highway Program are: Left to right, seated—Gen. Lucius D. Clay, retired, chairman; William A. Roberts, Milwaukee, president, Allis-Chalmers Mfg. Co., and Stephen D. Bechtel, San Francisco, president, Bechtel Corporation, A.G.C. Standing—David Beck, Seattle, president, International Brotherhood of Teamsters, and S. Sloan Colt, New York City, president, Bankers Trust Co.

expressed by spokesmen of the 22 organizations offering testimony. (Summaries of their views appear on succeeding pages.)

Highlights of the hearings were:

- The total cost of modernizing the nation's highways and streets over a 10-year period would be about \$101 billion, according to a preliminary tabulation by the Bureau of Public Roads of state, county and city estimates of construction needs.
- The predominant view expressed at the hearings was that a highway expansion program of the size proposed by President Eisenhower is needed to meet transportation requirements for economic growth and national security—though there were dissents by some spokesmen concerning the extent of highway needs.
- There was unanimous agreement that the chief problem in meeting highway needs is that of financing.
- One proposal for financing which was discussed at a closed meeting of the committee, and revealed by General Clay at a press conference during the hearings, was for a government-backed bond issue, to be administered outside the national debt by an agency similar to the Reconstruction Finance Corporation, and to be amortized by application of the normal federal appropriations for highway purposes. This would provide the necessary funds for highway construction as needed. Bond issue proceeds could also be used to help finance toll roads, under this proposal, with revenue from tolls being used to amortize bonds. General Clay said he assumed that under any highway program adopted, the states would continue their present practice of matching federal funds to build highways.
- The committee was assured that the construction industry has the capacity to carry out the greatly expanded highway program proposed by the President efficiently and economically, with continuously greater value to the public for its investment in highway construction, in testimony presented on behalf of The Associated General Contractors of America by George C. Koss, Des Moines, Iowa, A.G.C. vice president. (Summary of statement by Mr. Koss appears on page 52.)
- A recommendation for 100 per cent federal financing of the 40,000-mile interstate highway system to assure early completion was made by A. E. Johnson, chief engineer of the Arkansas State Highway Department.

and president of the American Association of State Highway Officials. (Summary of Mr. Johnson's testimony appears on page 53.)

Governors to Give Views

General Clay said the committee expected to receive "comprehensive suggestions" soon from a special committee appointed by the Governors' Conference to consider the President's highway proposal. The committee of governors, under the chairmanship of Gov. Walter J. Kohler of Wisconsin, has been making a study of highway needs and programs in all the states preparatory to drafting a report for submission to the executive committee of the Governors' Conference, which then will present its findings and recommendations to the President.

A Deficit of \$54 Billion

On the basis of the \$101 billion estimate of total needs in the next 10 years and anticipated revenues of \$47 billion available for construction during that time under the present highway program, there is a deficit of \$54 billion—\$4 billion more than the amount proposed by President Eisenhower for highway expansion in his message to the Governors' Conference in July. The reduction of the \$54 billion deficit "with sensible financing" was described by General Clay as the committee's goal.

At the conclusion of the hearings, General Clay gave an explanation of the \$101 billion estimate of total highway needs, in response to comments by several organization spokesmen on the fact that this figure is much higher than any previous estimates. It is a new estimate, he said, made pursuant to a directive of the 83rd Congress contained in the Federal-aid Highway Act of 1954, requiring the Secretary of Commerce to compile an estimate of the cost of completing all of the various highway systems in the United States, including state and federal systems, city streets, and all other public roads.

3,000,000 Miles of Roads

All these systems total more than 3,000,000 miles, General Clay said.

"This is the first time in the history of the highway movement that such a comprehensive and all-inclusive estimate of needs has been undertaken," he continued.

"In order that the committee may be in a position to study the total problem and the relationship between the

needs of the various systems and the ability of the several units of government to finance them, it is essential that the committee have available to it this information covering all of the various system needs.

"Furthermore, the estimates which the committee is using are based upon

completion of the highway systems to a standard which will be adequate for traffic needs in the year 1974, and a population of 200,000,000.

"At our present rate of growth, the demands in 1974 are expected to be approximately 50 per cent higher than current levels."

Gen. Clay Outlines Problem of Highway Expansion

Gen. Lucius D. Clay, chairman of the President's Advisory Committee on a National Highway Program, outlined the task before the committee at the opening of its two-day hearings on Oct. 7-8 as follows:

"President Eisenhower said last July that the building of an adequate highway system is one of the big domestic jobs we must commence without delay in order to secure the future of America. This committee agrees wholeheartedly with him.

"Specifically, he suggested a 10-year construction program, with expenditures of \$5 billion annually over and above our present capital outlay in order to overtake the accumulating obsolescence of our present system and to meet the needs of our population growth.

"Since the President offered that challenging plan to the Governors' Conference in July, a preliminary tabulation of state, county and city estimates of construction needs has been made by the Bureau of Public Roads in cooperation with these officials through the American Association of State Highway Officials.

"This total for a 10-year program is about \$101 billion. If we continued our present program, revenues available for construction during the next 10 years would be about \$47 billion. That leaves a deficit of about \$54 billion. The reduction of this deficit with sensible financing is our goal.

"This committee has been asked by the President to prepare a report indicating how this can be done. We expect to receive comprehensive suggestions soon from the governors of the states. As you know, they were asked by the President to propose ways whereby this program can be achieved, and in response thereto a special committee of the Governors' Conference has

been giving the matter thorough consideration.

"The committee expects also to get the views and suggestions of all other interested groups, for which purpose we have arranged these hearings. We are confident that the ideas you bring to us today and tomorrow, and also in the next few weeks, will be helpful in arriving at a workable and acceptable answer to the proposal. The committee's assignment then is to assemble all of the constructive ideas we can find, analyze them, and finally to submit an integrated program for consideration by the President.

"The President has already set forth an excellent summary of the compelling reasons for action. Thus we can concentrate our attention on the problem of organizing, financing and executing the greatly enlarged construction outlay which is needed. We hope that in your comments you will give principal emphasis to these immediate and urgent issues.

"This committee accepts as a starting premise the fact that the penalties of an obsolete road system are large and that the price of inefficiency is paid in dollars, lives and national insecurity.

"But the demands of the future are great. We are growing as a nation and our transportation requirements grow also in the same ratio as our population and economy. Unless we answer, boldly and courageously, the challenge which President Eisenhower has given us, our country will be burdened with a price for transportation inefficiency which we simply cannot afford.

"We have no choice but to go forward. The question isn't whether or not we need highway improvements, but rather how may we get them most quickly and most economically. The committee welcomes your help to determine the answer."

A.G.C. Supports Expanded Highway Program

• Koss Says Industry Has Ample Capacity, High Efficiency

» SPEAKING for The Associated General Contractors of America, George C. Koss, Des Moines, Iowa, A.G.C. vice president, gave assurance to the President's Advisory Committee on a National Highway Program on Oct. 8 "that the highway contracting industry has the capacity to carry out the greatly expanded highway construction program proposed by the President; that the work will be done efficiently and economically; and that the public will receive continuously greater value for its investment in highway construction."

Mr. Koss informed the committee at its public hearings in Washington (pages 50-51) that of the A.G.C. membership of more than 6,500 leading general contractors who each year execute the bulk of contract construction in the United States, approximately 3,500 engage in highway construction either exclusively or as part of their work, and some other members do related work, such as bridge building.

Highway Values Increasing

Explaining why the public receives continuously increasing values for its highway investment, the A.G.C. spokesman said:

"The highway contracting industry already for many years has been making a great contribution to the financing of highway construction programs by constantly increasing the efficiency of its operations. Continued research, improvements in contract documents and administrative procedures, new machinery, development of new methods, and the force of competition continuously will be bringing about more efficient operations. . . ."

"Greater investments made in highway construction will be sound investments in the development of the entire nation and all of its communities and should be made now. We believe that a proposal such as the President's is realistic and deserves the most careful consideration."

Mr. Koss recalled the wartime experience of the construction industry when there was need for a huge volume of construction at unprecedented speed. During the war, he said, the industry learned how to operate at greater speeds than was thought possible, how to achieve much greater ca-

pacity, "and we also learned that there can be efficiency with speed."

Capacity and Efficiency

Mr. Koss emphasized these points:

1. *Highway construction costs are low compared with prices of other services and commodities.* He cited the Bureau of Public Roads' composite mile price index, which in 1952 averaged 162.5 and by the second quarter of 1954 had declined to 151.1. (Base: 1925-29 average equals 100.) He also cited Bureau of Public Roads data showing that much highway construction work is being awarded at prices below engineers' estimates. For federal-aid work on which bids were taken during the first eight months of this year, the national average of percent the low bid was below engineers' estimate ranged from 9.4 to 12.2.

2. *Keen competition is prevailing and will continue to prevail for highway construction, which is further assurance of efficient and economical operations.* Mr. Koss referred to the findings of the A.G.C. survey in September which showed that competition for highway construction contracts is becoming increasingly keen. (October CONSTRUCTOR.) He also cited tabulations by the Bureau of Public Roads showing that the average number of bidders on federal-aid projects has been increasing during the past eight and a half years, from 3.9 in 1946 to 7 in the first half of 1954.

3. *The factors which might be considered as having a hampering effect on an expanding construction program are not serious and can be remedied by the time the program contemplated gets under way.* He referred to a telegraphic questionnaire sent by the association to its highway chapters early last month to provide the latest information on the capacity of contractors to handle an expanded highway program. One question asked was what additional construction contractors could handle in their states in two years and in five years. The majority of replies said contractors could double their capacity in two years and increase it to 400 per cent of present capacity in five years. The questionnaire also asked what factors, other than financing, might hamper an ex-

panded highway program. Those most frequently mentioned were shortages of engineers, inability to secure right-of-way in time, and possible local shortages of materials. These factors could be overcome, in the opinion of the A.G.C., by the time the program could get under way. The fact of an established 10-year highway construction program would stimulate engineers to enter the industry and highway departments, and would induce materials producers to adjust their capacity to meet all the needs.

4. *The A.G.C., all segments of the highway construction industry, and highway departments are cooperating in practical means of increasing the efficiency of operations.* He mentioned as examples the cooperation of the A.G.C., the American Association of State Highway Officials, the American Society of Civil Engineers and the American Society for Engineering Education to improve the education, training and employment of engineers, and the many practical steps taken jointly by the A.G.C. and A.A.S.H.O. to improve specifications, design, administrative procedures and construction practices.

A.G.C. Recommendations

Mr. Koss made six recommendations to the committee:

1. The program should be established on a 10-year basis and should be carried out in an orderly manner in each of those years.

2. The program should be aimed at completing highways between principal points of travel, rather than at sporadic improvement of a few miles of pavement.

3. The program should make adequate provision for the purchase of right-of-way in advance of construction, and further study should be given by the states to means of improving procedures for the acquisition of land.

4. The program should be administered through the present channels of the Bureau of Public Roads and the state highway departments.

5. The states should be encouraged to take such steps as are necessary to maintain engineering staffs qualified to administer an expanding program.

6. The program should continue the principle that highway construction should be undertaken by contract with the contract awarded to the lowest responsible bidder after public advertisement.

A.A.S.H.O. Head Gives Highway Financing Views

Complete federal financing of construction of the 40,000-mile interstate system of highways was advocated by A. E. Johnson, president, American Association of State Highway Officials, in testifying before the President's Advisory Committee on a National Highway Program Oct. 8.

"I am of the opinion that only by providing for the construction of the interstate system 100 per cent by the federal government can the construction of that system be achieved in a reasonable length of time and be completed in all states on the same level," Mr. Johnson said. "The federal government through its favorable credit rating can provide the funds to finance credit where it would be difficult for the several states, as the credit ratings of the several states present a heterogeneous pattern, and some states are prohibited from issuance of bonds. The federal government has a big stake in seeing the interstate system established and completed, and this interest justifies the above action."

"The states themselves are the logical units of government to supervise and construct that system. The states then should take over that system and maintain it and police it as their contribution."

A Tentative Financing Plan

On the question of financing, Mr. Johnson said:

"At the request of the executive branch of the federal government, a small committee of highway officials met in Washington to consider the matter of financing the President's highway proposal. We of this committee were not able to speak or act for the American Association of State Highway Officials, but in our deliberations and study we did consider the utilization of the federal 2-cent gasoline tax through capitalizing or borrowing on the expected earnings of that federal levy to provide in 10 years an interstate system of highways, plus a continuing authorization of federal-aid systems in the approximate amounts that we have had since World War II and increasing as traffic and earnings increase."

"The interstate system of highways, if constructed to the standards proposed, would take care of a large part of the more serious traffic bottlenecks

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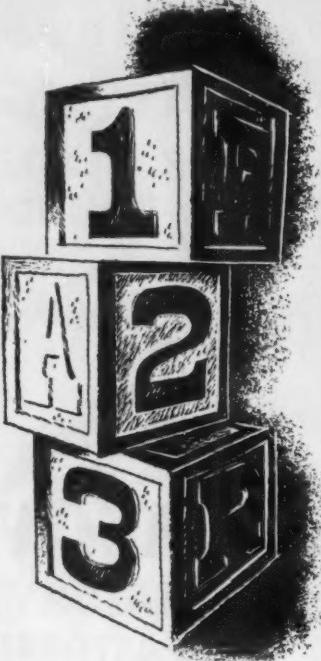
On jobs such as this, soil-bound macadam — 5 inches thick, the JACKSON MULTIPLE COMPACTOR, now more powerful than ever, achieves specified density in JUST ONE PASS. It is equally efficient on rock, or slag base and all other granular soils.

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Twin hook-up of manually guided JACKSON COMPACTORS consolidating gravel base for a large pavement repair area. These machines, used singly or in tandem, or side-by-side twin hook-ups, are exceedingly efficient for all types of granular soil base and fill compaction; also for bituminous patching and driveway construction. Operated from a trailer-mounted JACKSON POWER PLANT which may also be used for other power tools and lights.

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here are the three foundations on which to base your selection of the company that will issue your contract bonds. One, be sure that company is financially strong. Two, be sure that company prides itself on prompt service. Three, be sure that company can offer you preferred rates which so often mean the difference between a successful and unsuccessful bid. There's no earthly reason why you should settle for less.

•

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that we now have. The tentative plan that we have discussed would make use of borrowings to be serviced by a portion of the 2-cent gasoline tax, would make use of the current earnings of the 2-cent gasoline tax, and would make use of all state highway funds normally accruing to the states to provide for approximately \$50 billion expenditure in 10 years on the composite state highway systems."

Mr. Johnson said the A.A.S.H.O. would adopt a policy on the President's highway proposal at its annual meeting in Seattle Nov. 9-11.

Other Highway Testimony

Positions taken by 20 other organizations on President Eisenhower's proposal for an expanded highway program are indicated in the following summaries of testimony before the President's Advisory Committee on a National Highway Program Oct. 7 and 8:

Automobile Manufacturers' Association: William J. Cronin, managing director, said: "We are convinced that the benefits of such a program to the national economy, the public safety and the nation's military security will vastly outweigh the cost." He urged emphasis on the interstate system, "which when modernized will carry approximately 30 per cent of the nation's traffic."

National Grange: Lloyd C. Halverson, economist, said financing such a program would necessitate raising a considerable amount of money from general revenues for highway construction or greatly increasing bonded indebtedness.

American Farm Bureau Federation: Matt Triggs, assistant legislative director, said the Farm Bureau does not consider the highway situation so hopelessly inadequate as to warrant the proposed expansion program. He urged that the committee scale down the size of the program.

Chamber of Commerce of the United States: Harry J. Krusz, manager, internal affairs, said the Chamber has established two special highway study groups to assist in developing comprehensive recommendations. The Chamber will conduct a national conference on highway financing in Washington Jan. 13-14, to be followed by a referendum of its membership on highway policy.

Independent Advisory Committee to

the Trucking Industry: A. D. Condon, general counsel, said this labor-management group "is for a road program which will provide this country in as short a time as practicable with a network of modern highways." An adequate program "is essential from the standpoint of possible bombing attacks."

United States Conference of Mayors: Mayor David L. Lawrence of Pittsburgh presented a statement prepared by Robert Moses, construction coordinator of New York City, dealing especially with city traffic problems. He advocated an expanded highway program and said: "The needs of cities must not be minimized because they require relatively little mileage. This is strategic mileage of vital importance to both interstate and urban systems. It is the hardest to locate, the most difficult to clear, the most expensive to acquire and build."

American Road Builders' Association: Robert M. Reindollar, president, called for continuation of present federal-aid programs and for supplementing federal grants with federal credit, to be made available for both toll roads and free highways.

National Parking Association: C. T. McGavin, executive director, endorsed the President's proposal and urged continuance of private enterprise parking, rather than "socialistic" municipal parking.

National Association of County Officials: Keith L. Seegmiller, executive secretary, said counties generally would not be able to participate to any substantial extent in a greatly expanded federal-aid program, but would approve major improvements to main traffic arteries. He urged that the "long-range importance and inseparability of the secondary system" not be forgotten.

Automotive Safety Foundation: Levin H. Campbell, Jr., chairman, said the President's plan is "economically justifiable from an engineering and traffic needs standpoint."

American Automobile Association: Russell E. Singer, executive vice president, stressed the importance of the interstate system, divided highways and controlled access, and adequate urban highway facilities.

National Association of Township Officials: H. A. Thompson, president, called for repeal of the federal gasoline tax and its immediate reenactment by the states.

National Association of Motor Bus Operators: Arthur M. Hill, president,

advocated limitation of federal aid to roads necessary to federal functions and said federal highway funds should be paid out of general revenues. He saw merit in the suggestion for federal loans to states or federal guarantees of state bonds for nontoll facilities.

American Petroleum Institute: Joseph P. Walsh, vice president of Sinclair Oil Corporation, criticized the \$101 billion estimate of total highway needs as too high. He contended that after allowance for maintenance and other fixed costs, more than \$50 billion will be available for construction during the next 10 years from highway-user taxes and other sources, and that this would be sufficient to build adequate highways.

Association of American Railroads: J. Carter Fort, vice president and general counsel, said highways should be self-supporting on the basis of user charges, "with equitable and adequate payments required from those who use the highways as freightways," and railroads "should be relieved of the excessive burden" of helping to finance highway grade-crossing separations.

Private Truck Council of America: A. B. Gorman, president, questioned that highway needs total as much as \$101 billion. Cities should pay the cost of urban highways, he said.

American Municipal Association: Mayor A. E. Cobo of Detroit said urban areas should receive "the greatest proportion of highway revenue consistent with a well-balanced street and highway system," because consumption of gasoline "takes place predominantly on city streets."

American Trucking Associations: John V. Lawrence, managing director, proposed that completion of the interstate system be financed entirely by the federal government, enabling the states to use for other highways money which now goes to match federal-aid funds for the interstate system.

Truck-Trailer Manufacturers' Association: John B. Hulse, managing director, said highway users' contribution to the highway program should be made only through registration fees and motor fuel taxes, and additional money needed should come from general funds.

American Toll Ways Authority: S. E. Wiseman, executive director, advocated "a great network of superhighways" to be built and maintained by state toll road commissions.



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HIGHWAYS • AIRPORTS

Fine Example of Teamwork Seen in Nebraska

» THE work of the Nebraska State Highway Department and the Nebraska Chapter, A.G.C., in ironing out mutual problems offers a notable record of successful teamwork between highway officials and contractors.

The department and members of the chapter recently completed an 11-month program of reviewing the state's new highway construction specifications for the purpose of clarifying and refining all clauses that might lead to confusion or controversy.

Both groups are convinced that this objective has been achieved, but an important by-product of the meetings was the development of "better mutual understanding," according to James Critchfield, chapter manager.

Six Conferences Held

While the specifications themselves were rewritten by the highway department, it had been agreed at the inception of the project that the proposed new specifications would be carefully reviewed by both department officials and representatives of the highway and heavy contractors.

During the period from October 1953 to September 1954, six major conferences were held between the groups during which the specifications were the subject of continuous consideration and study. As each section of the proposed specifications was completed by the highway department, copies were sent immediately to the contractors' committee, which agreed

upon recommendations to be made, or points to be clarified, which were then taken up at a joint meeting.

Action was taken on more than 150 points which were either (1) immediately accepted, (2) rejected with satisfactory explanation, (3) withdrawn after explanation, or (4) taken under advisement.

Goals Are Economy, Clarity

Chapter Vice President Herndon Taylor of the Rentlor Company, Inc., Grand Island, who was chairman of the contractors' committee, pointed out that none of the committee's recommendations was designed to make major revisions in the specifications. Rather, all were intended to clarify or strengthen certain features, thereby eliminating clauses which might lead to "wide differences of interpretation by project engineers."

"The A.G.C. had nothing to do with writing the specifications," he added.

"Our job was really concerned with refinement of details. It was never our purpose to tell the highway department what it should have in the way of design, types of materials or durability requirements. The single most important objective was to eliminate or reword points that would tend to create controversy costing time and money."

The advice of experts was available at all meetings. For example, when the section on bridge construction was under discussion, recognized experts



Nebraska Deputy State Engineer Henry Schlitt (right), presents printer's proof of the 1955 highway specifications to Nebraska A.G.C. Chapter President William Gerhold (left) and Herndon Taylor, chairman of the chapter's Specifications Committee. The edition will be published in January.

in this field from both sides were on hand ready to state their opinions.

State Will Save Money

Henry Schlitt, deputy state engineer, who headed the highway department's conferees, feels that Nebraska will save thousands of dollars in future construction costs through the mutual understanding achieved, and through the measures adopted by the joint review body. He stated:

"The exchange of ideas during our conferences will contribute much to construction economies. The contractor best knows what operations are most expensive. It is therefore of utmost importance to have his views."

Nebraska Chapter President William Gerhold, of Columbus, praised State Engineer L. N. Ress by saying:

"This program was instigated by Mr. Ress. The extremely satisfactory conclusion would not have been possible without his support and active cooperation.

"Members of the Nebraska A.G.C. Chapter are grateful for the opportunity given us by the highway department to review the specifications, a document of vital importance to every highway contractor. This reviewing project is one of the most important activities carried on by our chapter this year."

Members of both committees feel that this cooperative effort has substantially contributed to eliminating any basic difficulties that may have existed between the contractors and the highway department, and that a new line of cooperative intent has been established between the two groups.

In addition to Mr. Schlitt and Mr. Taylor, members of the reviewing committees were:

For highway department—Loren Graham, construction engineer; O. W. Johnson, assistant construction engineer; William Carver, materials engineer; W. H. Mengel, design engineer; G. C. Strobel, bridge engineer; and Don Coffey, specifications engineer.

For A.G.C.—W. A. Biba, W. A. Biba Engineering Co., Geneva; D. J. Costin, Abel Construction Co., Lincoln; William Crook, Monarch Engineering Co., Falls City; L. R. Harpstreith, Francis Orshek Co., Fremont; L. D. Horrocks, Inland Construction Co., Omaha; H. W. Johnson, H. W. Johnson Co., Sioux City; L. J. Koenig, Peter Kiewit Sons' Co., Omaha; G. G. Robinson, Dobson & Robinson, Lincoln; and Wallace Scott, Overland Sand & Gravel Co., Stromsburg.

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AN ALLIS-CHALMERS REPORT

How hydraulic torque converter drive improves big tractor performance—increases job output

Allis-Chalmers offers the only crawler tractors that are capable of exerting maximum drawbar pull *at all times* . . . under all load and terrain conditions . . . without gear-shift guesswork.

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This eliminates most shifting . . . leads to far more work done in a continuous work cycle . . . far longer equipment life.

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Hydraulic torque converter drive is just one of many reasons why the Allis-Chalmers HD-20 and HD-15 assure you higher output, less upkeep.

HD-20 — WEIGHT — 41,000 LB • 175 NET HP AT FLYWHEEL
HD-15 — WEIGHT — 28,000 LB • 135 NET HP AT FLYWHEEL

Pulling — Hydraulic torque converter drive actually multiplies torque up to four and one-half times . . . develops tremendous drawbar pull to start the load smoothly and automatically accelerates to the highest speed that conditions permit, in either high or low range.



Pushing — Operator just makes contact, then opens the throttle and relaxes. The HD-20 automatically matches speed to that of pushed equipment, maintains steady contact while loading, sends load off to the fill at higher speed.



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A.A.S.H.O.-A.G.C. Group Meets at Area Sessions

The Joint Cooperative Committee of the American Association of State Highway Officials and The Associated General Contractors of America, discussing President Eisenhower's proposal for a \$50 billion increase in highway construction over a 10-year period at two recent meetings, concluded that such a program is needed and would be a sound investment.

One session was held Sept. 17 at Sun Valley, Idaho, at the annual meeting of the Western Association of State Highway Officials, and the other at Nashville, Tenn., Sept. 30, at the annual convention of the Southeastern Association of State Highway Officials.

W.A.S.H.O. Elects Officers

W.A.S.H.O. elected officers for 1955 as follows:

President, C. O. Erwin, chief highway engineer, New Mexico, succeeding Earle V. Miller, chief highway engineer, Idaho.

Vice president, J. R. Bromley, chief highway engineer, Wyoming, succeeding Mr. Erwin.

Secretary-treasurer, H. B. Glaisyer, commission secretary, Oregon State Highway Department, succeeding W. E. Willey, engineer of economics and statistics, Arizona State Highway Department.

Executive committee members, Mr. Miller; Scott P. Hart, state highway engineer, Montana, and W. A. Bugge, director of highways, Washington State, in addition to the new officers.

New S.A.S.H.O. Officers

S.A.S.H.O. elected the following officers for 1955:

President, Commissioner W. M. Leech, Tennessee Department of Highways and Public Works, succeeding W. H. Rogers, Jr., chief engineer, North Carolina State Highway and Public Works Commission.

Vice president, H. K. Griffith, commissioner, West Virginia State Road Commission, succeeding Mr. Leech.

Secretary-treasurer, Lawrence M. Means, senior office engineer, Tennessee Department of Highways and Public Works, succeeding B. W. Davis, chief equipment engineer, North Carolina Highway Department.

The A.A.S.H.O.-A.G.C. Joint Cooperative Committee was to meet next on November 10 in Seattle at the annual A.A.S.H.O. convention.

N.A.S.A.O.-A.G.C. Seek Airport Act Changes

• Group Opposes Added Restrictions on Federal-Aid Funds

» THE Joint Cooperative Committee of the National Association of State Aviation Officials and The Associated General Contractors of America, meeting in Seattle Sept. 21, adopted a resolution urging the Civil Aeronautics Administration not to place any added restrictions on allocation and matching of federal-aid airport funds.

Amendments Needed

The committee agreed to continue its efforts to improve the Federal-aid Airport Act, believing that amendments to make the law more workable will greatly benefit the development of adequate airport facilities.

The \$22 million appropriation for the federal-aid airport program for the current fiscal year will enable state and local governments to proceed with many worth-while civilian airport construction projects, the committee concluded. It was pointed out that because of keen competition among contractors, awarding agencies should obtain excellent bids.

Norman C. Bird, chief engineer, Illinois Department of Aeronautics, and Max C. Harrison, president, Harrison Construction Company, Pittsburgh, presided as co-chairmen.

New N.A.S.A.O. Officers

The N.A.S.A.O. national convention, held in Seattle at the same time, elected officers for 1955 as follows:

President, Claude B. Friday, director, Bureau of Aviation, New York Department of Commerce, succeeding Charles H. Gartrell, commissioner, Kentucky Department of Aeronautics.

First vice president, Lester J. Maitland, director, Michigan Department of Aeronautics.

Second vice president, C. B. Culbertson, director, South Carolina Aeronautics Commission.

Treasurer, Kenneth Ringrose, director, Connecticut Department of Aeronautics.

Executive secretary, Col. A. B. McMullen, Washington, D. C.

Legal counsel, Madeline Dinu, Detroit.

Regional vice presidents, Earl Snyder, director, Oregon State Board of Aeronautics, Region 1; L. V. Hanson, director, South Dakota Aeronautics Commission, Region 2; David Krim-

endahl, director, Aeronautics Commission of Indiana, Region 3; F. E. Kimble, Jr., acting chief, Bureau of Aeronautics, New Jersey Department of Conservation and Economic Development, Region 4; Scott K. Higgins, director, Maine Aeronautics Commission, Region 5; B. M. Doolin, director, California Aeronautics Commission, Region 6; C. A. Moore, director, Mississippi Aeronautics Commission, Region 7; James E. Martin, director, Tennessee Bureau of Aeronautics, Region 8.

Airport Grants Announced

Secretary of Commerce Sinclair Weeks last month announced 164 grants, totaling \$20,425,843, for airport construction or improvement under the federal-aid airport program for the current fiscal year. The federal funds will be matched by local governments to provide a total expenditure of more than \$40 million—the largest federal-aid airport program since 1951. In 1953 the federal allocation totaled \$11 million.

Benefit All Aviation

"The program will benefit all segments of aviation and will create employment in industries supplying construction materials and those engaged in building and improvement of airports all over the country," Secretary Weeks said.

"The program also will stimulate the economy by providing new facilities to handle more passengers and more freight. It will help relieve congestion in high density traffic areas and will contribute materially to progressively higher levels of aviation safety and schedule dependability."

In the selection of projects, highest priority was given to those which will increase safety and efficiency of aviation operations, the announcement said. Of the \$22 million appropriated for the program this year, \$15 million was required by law to be apportioned among the states according to the area-population formula prescribed by the Federal-aid Airport Act. Another \$5 million was a discretionary fund for use where high-priority needs could not be met out of state apportionments.

Contractor Designs Special Canal Equipment

• Brown & Root Completes Houston Job Months Under Schedule



Giant machine designed and built by Brown & Root unreels and lowers lengths of welded wire fabric onto previously prepared water supply canal bed just prior to concreting. Single rails carried all "production line" machines across 13 miles of prairie, with rails kept moving continuously ahead of machines.

Brown & Root, Inc., A.G.C., recently completed Houston's new 13-mi. water supply canal, linking Lake Houston and the city's filter plant, several months ahead of schedule by using "production line" machines, two of which were designed and built by the contractor.

The firm cut the existing dirt-walled canal down to rough grade with a heavy duty bulldozer with "V" blades and scooped out the dirt with a drag line. Then single rails were laid on

each side to accommodate a trimming machine with conveyor and other machines to follow.

A special machine with bobbins lowered welded wire fabric into position on the bottom of the canal, which was followed by a slip-form machine that distributed concrete taken from a mixer which moved alongside. The concrete was distributed by dolly into vertical down spouts on the machine across the canal width. The machine could be adjusted hydraulically to



Slip-form machine lays uniform thickness of concrete across entire width of canal in one continuous operation, and is adjusted hydraulically following guide wire on bank. Mixer, at left, delivers mix to dolly which runs across machine and fills down-spouts. Workers ride ahead of machine to hook wire fabric up into the mix.

(Photos by Jack Laws, Houston.)

insure uniform thickness of concrete at every part of the canal. Workers rode on a platform just ahead of the downspouts and hooked the reinforcing fabric up into proper position in the newly-poured concrete. Up to 1,570 linear feet of canal width (32 ft.) could be poured in a day with this machine, which was designed and built by Gunnert and Zimmerman, Stockton, Calif.

The final equipment to ride the rails was a jumbo finishing machine which also carried workmen who cut longitudinal and transverse planes of weakness with trowel grooves.

As soon as the last machine passed, workers took up the rails and moved them ahead on the job.

Nearly 2 1/4 million sq. ft. of 4-in. thick portland cement concrete and 400 tons of wire fabric went into the \$3.2 million canal, which now carries 150 million gallons of water daily to Houston.

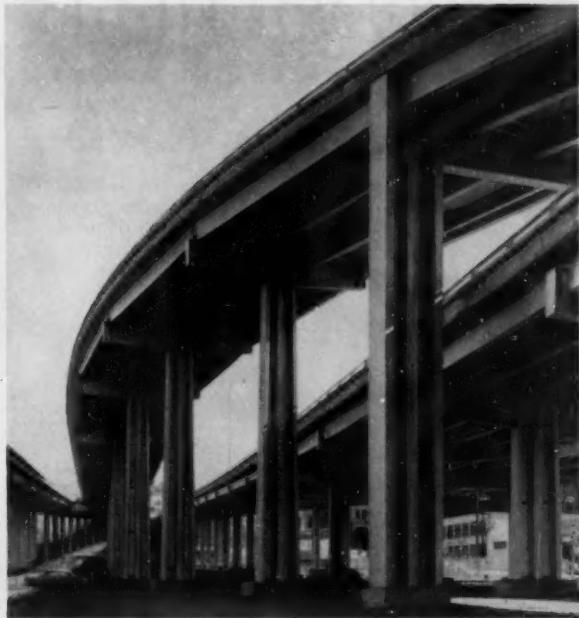
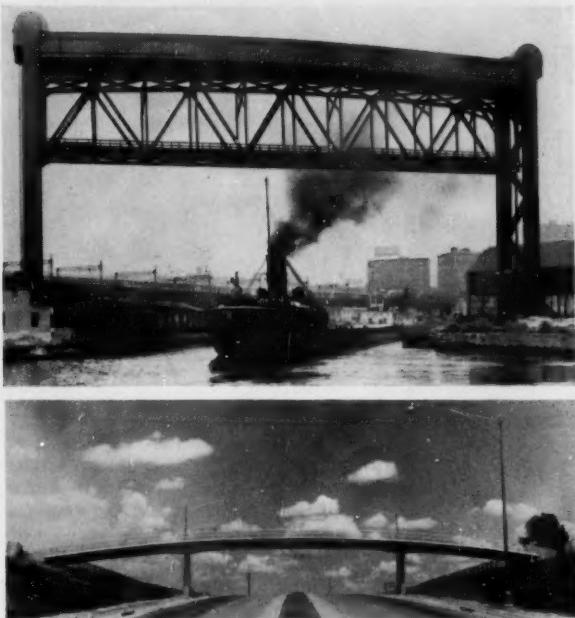
Miss. River Bridge Plans

A successful financial transaction opened the way to the construction of one of the largest cantilever bridges in the world last month as the Mississippi River Bridge Authority of New Orleans announced the sale of \$65 million of bridge revenue bonds to a New York syndicate headed by Blyth & Co., Inc.

Captain Neville Levy, chairman of the Bridge Authority, announced that a tentative schedule to advertise and award construction contracts will be put in effect. Bids for the mattresses to protect the river bed during the construction will be advertised this month, he added. It was undecided whether to give the prospective bidders 30 or 60 days in which to submit their proposals, but it is expected that construction will begin in January, 1955, and work on the superstructure is to start by the fall of 1956.

The new bridge will be 2.2 miles long, with approaches 3.4 miles in length. The width of the roadway from curb to curb will be 52 feet, providing for two 24-foot roadways. The 1575-foot center span will be one of the three longest in the world, the other two being the Quebec bridge over the St. Lawrence River in Canada and a cantilever railroad bridge in Scotland. The total cost is expected to be \$84 million.

Steel Institute Names "Most Beautiful Bridges" Opened in 1953



Three top awards were made in the American Institute of Steel Construction's 26th annual "Aesthetic Bridge Competition," and seven others received honorable mention. The three winners, shown above, are:

Top left—Class IV, for movable bridges, the New York Central Railroad Bridge No. 8, over Cuyahoga River, Cleveland, Ohio, designed by Howard, Needles, Tammen & Bergendoff and fabricated by The Mount Vernon Bridge Co., Mt. Vernon, Ohio. Bates & Rogers Construction Corp., Chicago, built the substructure.

Bottom left—Class III, for spans under 400 ft. and costing under \$500,000, the Robert Street pedestrian under pass over a freeway in Fort Worth, designed by Texas Highway Department, and fabricated by North Texas Steel Co., Inc., Fort Worth. J. M. Purvis, Fort Worth, was the general contractor.

Right—Class II, bridges with spans under 400 ft., costing over \$500,000, the Ninth and Tenth St. connections, Bayshore Freeway, San Francisco, designed by California Division of Highways Bridge Department and fabricated by Bethlehem Pacific Coast Steel Corp.

This bridge was acclaimed by jury as "the most imaginative entry, because it is an honest structural solution to a difficult and complex problem. There is great harmony in the structure even though both single and double columns are used in the supports. It exemplifies the strength, simplicity and integrity which can be accomplished merely by the use of steel alone." General contractor was Chas. L. Harney, Inc., San Francisco.

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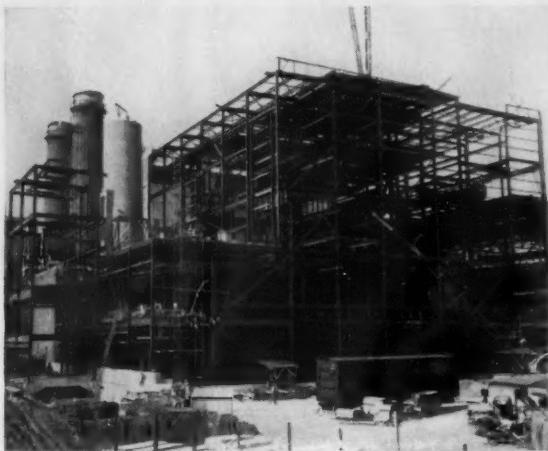
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Four New Power Stations

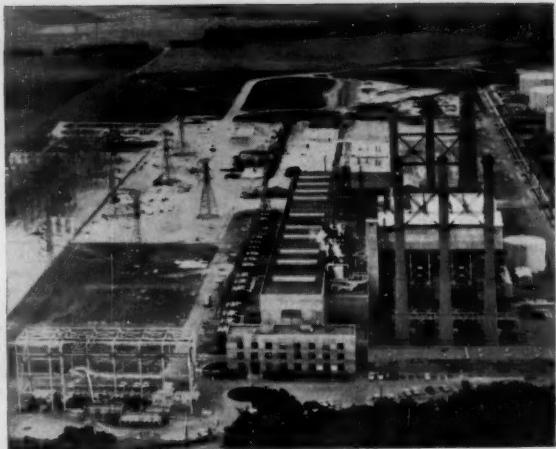
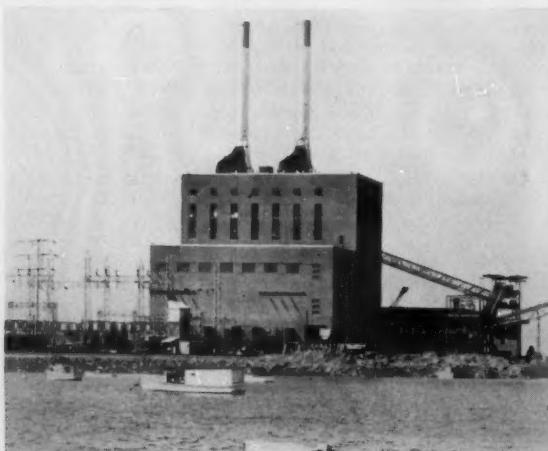
MOSS LANDING, CALIFORNIA

One of the West Coast's biggest generating plants is Pacific Gas and Electric's 575-mw steam plant on Monterey Bay. Bethlehem Pacific Coast Steel Corporation fabricated and erected the steelwork, and fabricated the switching structures and transmission towers shown here.



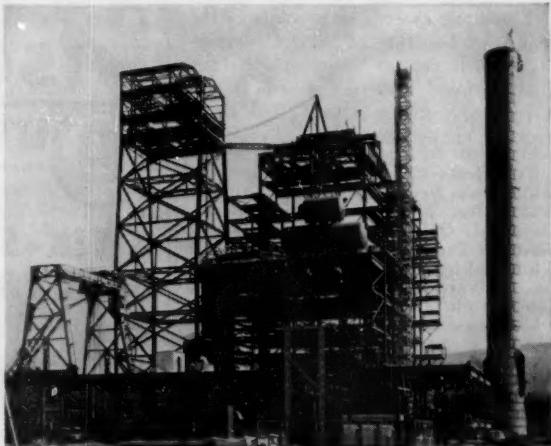
MARTINS CREEK, PENNSYLVANIA

Pennsylvania Power and Light's new 132.5-mw outdoor plant on the Delaware River was designed to operate only 3,000 to 4,000 hours per year, handling peak loads. Investment was minimized by such economies as eliminating housings for much of the equipment, leaving exposed a good deal of the 2300-ton steel framework. A second unit is under construction.



ALEXANDRIA, VIRGINIA

Back in 1948, Bethlehem fabricated and erected 3800 tons of steelwork for Potomac Electric's 160-mw steam-electric plant. Greatly increased power requirements have since made it necessary to construct this 3500-ton addition, to house two new 100-mw units. Final capacity will total 360 mw.



DUNKIRK, NEW YORK

Niagara Mohawk's ultra-modern steam-electric generating station on Lake Erie. The steam turbine of each of the two 80-mw units is of a new design, first of its type ever made. Over 5000 tons of steel, fabricated and erected by Bethlehem Steel Company, went into the station's structural framework and boiler supports.

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BETHLEHEM STEEL

THE CONSTRUCTOR, NOVEMBER 1954

HOW TO BREATHE UNDER WATER

Spanish Work Invitation

The Brown-Raymond-Walsh combination, prime contractors for the Spanish base program, will issue invitations to bid in November or December on a P.O.L. system to serve the complex of American bases in Spain. Work will be done by Spanish and American joint venture organizations.

Work includes (1) about 600 miles of about 10-in. welded, seamless, steel pipeline, (2) necessary pumping stations and facilities and equipment to produce a multiple petroleum product pipeline system, and (3) a series of complete storage tank farm terminals along the pipeline.

The project will be subcontracted in one or several contracts to a joint venture organization or organizations, each composed of at least one Spanish contracting firm and one American pipeline firm who must be prepared to equip, organize and furnish required personnel to accomplish the project "in a manner comparable with practice in similar installations in the United States."

The method is intended to "take full advantage of the American contractor's ability to furnish specialized equipment and technically trained personnel, together with the Spanish contractor's expert knowledge of local labor and other pertinent construction phases not requiring major pipeline experience."

Equipment furnished by the American contractor will be allowed to enter Spain duty-free, provided it is guaranteed that the equipment will be removed from the country upon completion of the work.

Proposals will be requested early in 1955 from established Spanish contractors who will be required to associate themselves with an American organization "with a record of successful experience" in pipeline construction, Brown-Raymond-Walsh said, with awards to be made on the basis of competitive bidding. Payment will be made in both pesetas and U. S. dollars.

Interested American contractors should make arrangements to associate themselves with an established Spanish contractor in the "very near future," the firm said. Bidders will be required to furnish a "substantial" performance bond.

Correspondence should be addressed to Brown-Raymond-Walsh, Edificio Espana, Madrid, Spain.



Tunnels like this project under the harbor at Boston would not be possible without dependable push-pull ventilation. That's why you see so much Naylor lightweight pipe in this vital service. Its proved dependability in push-pull operation is due to Naylor's exclusive lockseamed-spiralwelded structure which provides greater collapse strength and extra safety in a light-wall pipe. Naylor's one-piece Wedge-Lock coupling makes it a simple matter to install Naylor lines in tunnel construction because it permits the line to hug the wall and joints can be made up with only one side of the line in the open. For complete details write for Bulletins No. 507 and No. 514.

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Manufacturers-Contractors Group Studies Equipment Picture



At C.I.M.A.-A.G.C. Joint Cooperative Committee meeting in St. Louis, Mo., are shown above, seated: C. S. Embrey, A.G.C. co-secretary, Washington, D. C.; Dwight W. Winkelman, Syracuse, N. Y., A.G.C. co-chairman; W. B. Greene, Barber-Greene Co., Aurora, Ill., C.I.M.A. co-chairman; C. E. Cooke, A.G.C., Detroit; Harold F. Hess, C.I.M.A. co-secretary, Chicago; and Frederick Salditt, Harnischfeger Corp., Milwaukee.

Standing: Carleton R. Dodge, Northwest Engineering Co., Chicago; Thomas H. Joyce, Jr., Springfield, Ill.; Fred Birch, Great Falls, Mont.; G. W. James, Ruston, La.; H. L. Hoak, W. Des Moines, Iowa; Ben M. Hogan, Little Rock, Ark.; Wardner Scott, Lincoln, Nebr., and A. S. Macdonald, Tacoma, Wash., all A.G.C.; and Ray McLean, Jaeger Machine Co., Columbus, Ohio.

» FINANCING of construction projects at the operating level, including equipment purchases, and the President's proposed accelerated high-

way construction program occupied the attention of the Sept. 28th meeting in St. Louis of the Joint Cooperative Committee of the Construction In-

dustry Manufacturers Association and The Associated General Contractors of America.

Equipment and parts were reported in good supply and prices stable.

Education Program

C.I.M.A. representatives described a proposed "educational program" on the need for sound financing of projects at the operating level and of purchases of equipment, which may be directed to banking and other financial institutions by their association.

The committee took note of current trends in equipment financing, and general contractors expressed concern over some instances of extremely liberal financing practices.

Highway Plan Viewed

Prospects of a substantial highway construction program arising from the President's suggested supplemental expenditures of \$50 billion during the next 10 years were discussed at length.

Attending the meeting in addition to those pictured above were A.G.C. President John MacLeod, Paramount, Calif.; A.G.C. Members A. S. Horner, Denver; F. W. Parrott, Sioux City, Iowa; Guy F. Atkinson, San Francisco; J. Rutledge Hill, Dallas; and Herman Brown, Austin, Texas. Also, A.G.C. Managing Director H. E. Foreman, Executive Director J. D. Marshall, and Staff Members W. E. Woodruff, W. G. Dooly, Jr., and C. I. Mehl.



New Paver in Action.—Harrison Construction Co., Pittsburgh, recently laid 2,766 tons of bituminous surface mix in two 9 ft. wide, 1½-in. deep strips 4.2 mi. long in 16 hours and 30 minutes in Allegheny County, Pa. Highway officials and contractors viewed operations of the new Blaw-

Knox paver-finisher manufactured by the Foote Construction Equipment Division, which laid 164.2 tons of asphalt in the first hour without taxing its capacity, and 933 tons in the first working day in a 1.6-mi. distance. It has been approved by the Pennsylvania Department of Highways.

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6 $\frac{7}{10}$ CTS.

*Per work hour
DURING A 2-YEAR PERIOD*

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MOTOR GRADER**

Maintenance costs are watched carefully in the Russell County Highway Department in Kansas. Quality of equipment design and construction are quickly reflected on the detailed "Work and Cost Record" sheets kept by this county.

They reveal that for 1951 and 1952 the total repair costs (parts and labor) for their GALION 118 Grader amounted to only \$245.79. Pro-rated over the 2-year total of 3,679 recorded work hours for this grader, gives the amazingly low repair cost figure of 6-7/10 cents per hour. That's the kind of service record that **SAVES MONEY!**

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EQUIPMENT OPERATION ACCOUNT—Tractors—Charge per hour
RUSSELL COUNTY, KANSAS

Galion Motor Grader 118
WORK AND COST RECORD SUMMARY FOR 1951
Russell County Kansas

MONTH	NUMBER OF WORKING HOURS	FUEL GALL.	FUEL COST	GAS GALL.	GAS COST	OIL QUANTITY	OIL COST	OIL DRAINAGE	DRIVE LINE	DRIVE LINE COST	REPLACEMENT	MISC.	YEAR'S COST OF TRACTOR OPERATION—PLACE TOTALS HERE
January	570	792	554	46.70	11.2	2.17	69.00	11.22	21.00	2.25	4.50	500.00	92.44
February	792	792	406	48.40	7.8	1.43	36.00	8.67	17.00	2.16	8.00	14.98	81.61
March	960	1153	385	46.20	14	2.59	36.00	8.67	17.00	2.16	8.00	14.98	92.44
April	1396	1396	398	47.76	6	1.11	35.00	7.08	17.00	2.16	8.00	14.98	81.61
May	1448	229	26.67	4	1.74	20.00	4.50	17.00	2.16	8.00	14.98	81.61	
June	1557	235	29.82	12	2.07	27.00	6.75	17.00	2.16	8.00	14.98	81.61	
July	1553	1618	167	21.29	14	2.07	27.00	6.75	17.00	2.16	8.00	14.98	81.61



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MOTOR GRADERS

- No. 118, 115-125 h.p.
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- No. 450, 75 h.p.
- No. 303, 55 h.p.
- No. 503, 50 h.p.

GRADER ATTACHMENTS

- Snow Plows and Wings
- Hydraulic Shiftable Moldboard
- Creeper Transmission
- Bulldozer
- Elevating Loader

ROLLERS

- Tandem
- Three-Wheel
- Portable
- Trench
- Towing Attachment

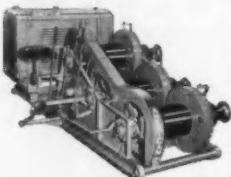
PERSON _____

FIRM _____

STREET _____

CITY _____

STATE _____



A new building system, plus modern, high-speed American equipment, have pared 10 months off construction time at the University Hospital of Portland, Oregon. Originally

scheduled for completion late in 1955, the building's 1,200-ton structural steel framework is already completed.

The contractor followed the "Cofar" building system in which metal decking is welded to the steel frame and covered with light-weight concrete. Helping to speed the rate of construction and keep costs down is the highly-efficient American Model 75-B 3-drum Hoist.

With anti-friction bearings throughout, American Hoists not only speed the job by delivering more capacity loads per day, but they withstand longer, tougher usage. Years of experience are behind these famous hoists, built to satisfy the most exacting requirements of owner and operator alike.

American Hoists outsell all others simply because they do more work, with less maintenance, for a longer life span. Ask your distributor for details on the complete American Hoist line, *the line that leads the field!*

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Hoists • Portable Material Elevators • Genuine Crosby Clips • Revolver Cranes • Utility Hoists

» IMPROVED SAFETY methods and their application to insure a safer America in which to work and play came in for close study at the 42nd National Safety Congress and Exposition in Chicago, Oct. 18-22.

Hundreds of speakers at dozens of different sessions addressed over 12,000 representatives from labor, industry, education and government who took part in one of the largest and most successful expositions conducted by the National Safety Council.

Though construction accidents were down slightly last year, according to both government and National Safety Council figures, members of the Construction Section sought ways to reduce further mishaps which annually take the lives of over 2,000 workers and permanently cripple many thousands more. This high accident rate also keeps workmen's compensation insurance rates at record levels and adds to the cost of construction.

One of the highlights of the Safety Congress was the presentation of the council's Award for Association Achievement to The Associated General Contractors of America, and 10 other associations. The award was presented by E. C. McFadden, National Safety Council vice president for industry, and vice president of the Texas Employers Insurance Association, Dallas.

Receiving the award for the A.G.C. was O. Lupinski, Lupinski, Inc., Milwaukee, a member of the Association's Accident Prevention Committee, and chairman of the Accident Prevention Committee for A.G.C. District 7, which includes chapters in Illinois, Indiana and Wisconsin. It is the second time in three years that the A.G.C. has won such an award.

George P. O'Rourke, O'Rourke Construction Co., A.G.C., Dallas, vice chairman of the section, presided over the meetings in place of General Chairman H. B. Alexander, H. B. Alexander and Son Inc., A.G.C., Harrisburg, Pa., who was unable to attend the sessions.

The first day's session heard Kenneth McFarland, educational director of the American Trucking Associations, Inc., Topeka, Kans., give an address on the importance of the individual in making safety program work, entitled "Thinkin' Tall."

Following his remarks, a film entitled, "If You Took Your Family to Work With You," was shown. The movie, recently released by the N.S.C., was filmed on a construction project.

42nd Safety Congress Views Ways to Lower Accident Rate

• O'Rourke Elected to Head Construction Section



At the 42nd National Safety Congress and Exhibition in Chicago last month the A.G.C., along with 10 other trade associations, was given the Safety Council's Award for Association Achievement in safety services and other contributions to the reduction of accidents on the job. O. Lupinski, right, Lupinski, Inc., Milwaukee, is shown receiving the award for the A.G.C. from E. C. McFadden, Safety Council vice president for industry. In the right foreground is William Allison, safety director of the British Columbia Lumber Manufacturers Association, who also received a similar award.

The rest of the opening session was devoted to general discussion.

First item on the final session was a film preview of "The Perfect Crime" produced jointly by the Caterpillar Tractor Co., and the Construction Section's visual aids committee. William G. Hawkins of Winston Brothers, Inc., A.G.C., Minneapolis, committee chairman, presided over the showing. J. George Robinson, manager of the A.G.C. of Missouri, secretary of the Construction Section, then gave a report on the section's executive committee.

Following this was the installation of executive committee officers for the coming year. They are as follows: Mr. O'Rourke, general chairman; Robert L. Jenkins, chief of the safety division of the Corps of Engineers, vice chairman; Mr. Hawkins, secretary; and John L. Junkert, Marsh and McLennan, Inc., Minneapolis, assistant secretary.

New committee chairmen include:

Dale Medsker, National Surety Corp., Atlanta, engineering committee; Herbert R. Westlund, Argonaut Insurance Exchange, San Francisco, data and publications subcommittee; Mr. Hawkins, visual aids subcommittee; C. H. Patterson, F. H. McGraw and Co., Hickman, Ky., screening subcommittee; Kenneth F. Coughlin, Kansas City Bridge Co., A.G.C., Kansas City, health committee; Robert L. Moore, Lumbermen's Mutual Casualty Co., Chicago, membership committee; E. N. Ziner, John A. Volpe Construction Co., A.G.C., Malden, Mass., newsletter committee; J. G. McFarland, American Bridge division of U. S. Steel Co., Pittsburgh, program committee; Fred A. Hornsby, Mine Safety Appliance Co., Pittsburgh, publicity committee; S. D. Webb, Dravo Corporation, A.G.C., Pittsburgh, incentive and statistics committee; and Harry J. Kirk, the A.G.C. national staff, national organizations committee.

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on a normal angle gives a direct lead from power divider to rear axle; simplifies design, eliminates excess parts, minimizes maintenance.

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mounted on forward axle, is of simple design; provides for transmission of power equally to both axles.

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» THE Connecticut State Chapter of The Associated General Contractors of America held its eighth annual meeting on Oct. 14, at Waverly Inn, Cheshire.

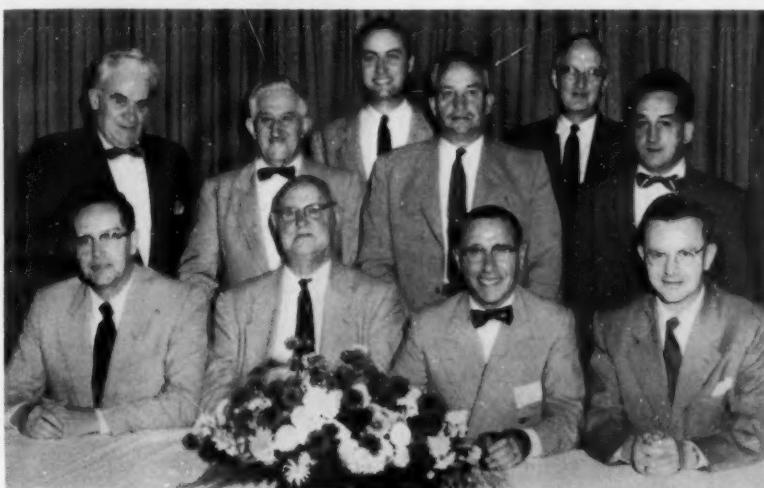
New officers and directors elected and installed at the meeting were Max H. Teitelman, Chapel Construction Co., New Haven, president, succeeding Frank P. Sullivan, Frank P. Sullivan, Inc., East Haven; Chester W. Moore, Torrington Building Co., Torrington, vice president; Carl R. Langer, H. Wales Lines Co., Meriden, secretary; Walter A. Hubbell, Bridgeport, treasurer; Arthur F. Peaslee, A. F. Peaslee, Inc., Hartford; Michael Smith, Smith Construction Co., Inc., Derby; and Joseph Adams, Harry Maring, Jr., Inc., Bridgeport, directors.

Other directors whose terms did not expire this year, are William Noble, Jr., W. J. Megin, Inc., Naugatuck; Edward Packtor, The Edward Packtor Co., Wethersfield; and William Allaire, P. Allaire & Son, Inc., Bristol. Past President Sullivan automatically became director for one year.

The chapter's meeting was addressed by Prof. O. Glenn Saxon of Yale University.

Connecticut Chapter Holds Annual Meeting

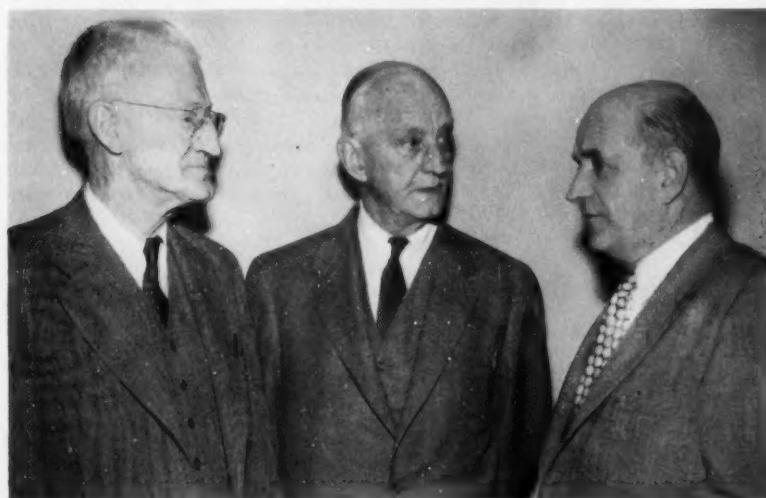
• New Officers and Directors Installed at Cheshire



New officers and directors of the Connecticut State Chapter, A.G.C. seated from left to right are: Carl R. Langer, secretary; Walter A. Hubbell, treasurer; Max H. Teitelman, president; Chester W. Moore, vice president. Standing from left to right: C. F. Grisham, executive vice president; Edward Packtor, Joseph Adams, William Noble, Jr., Arthur F. Peaslee and Michael Smith, directors.

Massachusetts Contract Law Now Enforced

• A.G.C. Chapter Hears State Official Review 1941 Statute



» THE Associated General Contractors of Massachusetts met in Boston on Oct. 20 to hear State Commissioner of Labor and Industries, Ernest Johnson review a law regulating the award

of contracts for public building projects.

According to Commissioner Johnson the law was adopted back in 1941 but it was never enforced. An act of the

state legislature of last year gave the responsibility to Mr. Johnson's agency to enforce this law.

During the past years many provisions of the law have been neglected by architects and state authorities, he added. Currently the state is carrying on an educational program to familiarize the construction industry with the law. With the cooperation of all

Mr. Johnson, center, confers with chapter Vice President Thomas Mulcaire, left, Thomas Mulcaire Corp., Brookline Village; and chapter President Julius Abrams, Poley-Abrams Corp., Boston.

segments of the industry, Mr. Johnson said, his agency will soon be in a position to reject bids which do not conform strictly with the law.

The commissioner stated that although the A.G.C. opposed the legislation at first, he was gratified to see the contractors are now doing everything possible to assist his department in carrying out the law.

The A.G.C. meeting was held at the Hotel Kenmore and attended by 60 members of the Massachusetts chapter. Commissioner Johnson was introduced by Julius Abrams, chapter president.

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Secretaries Met During A.G.C. Board Session

During the recent midyear board meeting of the A.G.C. in St. Louis, the association's Secretaries' and Managers' Council met to discuss various problems of chapter administration, and to exchange information on industry conditions in different parts of the country. The council held a general morning session followed by separate meetings of building chapter managers and those of heavy and highway groups. Shown during the meetings are the following council officers: left to right—W. D. Shaw, Los Angeles, vice chairman of heavy and highway chapters; William C. Bowden, Pittsburgh, vice chairman of building chapters; A. H. Harding, Portland, Oreg., chairman; and Curtis Bell, Corpus Christi, secretary.

Minn. A.G.C. Adds Past President to Staff

» THE Associated General Contractors of Minnesota recently appointed John H. Mullen, past chapter president and former highway and heavy contractor, to be a full-time consultant on the chapter's staff.

A. H. Baumeister, president of the A.G.C. of Minnesota, at the time of the appointment, called Mr. Mullen "one of Minnesota's most distinguished and well known general contractors."

Mr. Mullen is former president of Nelson, Mullen and Nelson, a general contracting firm engaged in railroad, highway and airfield construction throughout the country. He retired from the active contracting business earlier this year.

A resident of St. Paul, Mr. Mullen began his career in construction as deputy state engineer for roads and played a major part in laying out the Minnesota state trunk highway system. In 1920 he was appointed deputy highway commissioner and chief engineer under the commissioner of highways.

His responsibilities included in ad-

dition to engineering, personnel, finance, construction methods, and the preparation of highway plans and specifications. During this period his office was responsible for the spending of over \$20 million per year.

He is past president of the St. Paul Engineers Society, president of the Mississippi Valley Association of State Highway Officials, and secretary of the American Association of State Highway Officials. He is also a registered highway engineer under the Minnesota registration law and a member of the Minnesota Society of Professional Engineers.

Thomas Sanberg, former managing director of the Minneapolis Electric Appliance Dealers Association and the St. Paul Appliance Dealers Association, joined the staff of the A.G.C. of Minnesota as a special assistant to Manager Robert J. Hendershott, it was announced in September.



It's Barnes Again

ON ANOTHER TOUGH ONE!

PUMPING 36,000 G.P.H. AT 130 FEET OF HEAD

Here is really a tough one! With the discharge lines running straight up for 100 feet and then taking off at an angle for 20 more feet — these two Barnes 90M Self-Priming Centrifugal Pumps are doing an outstanding job of controlling the water level in this gypsum quarry of the Celotex Corporation at Port Clinton, Ohio.

To make the job even tougher, the water is high in sulphur content and laden with grit and silt. Yet these Barnes pumps have been on the job day-in-and-day-out — one pump for 7 years — the other for 3 years. Maintenance has been practically nothing — only to shim the impeller of one pump to bring it within recommended clearances.

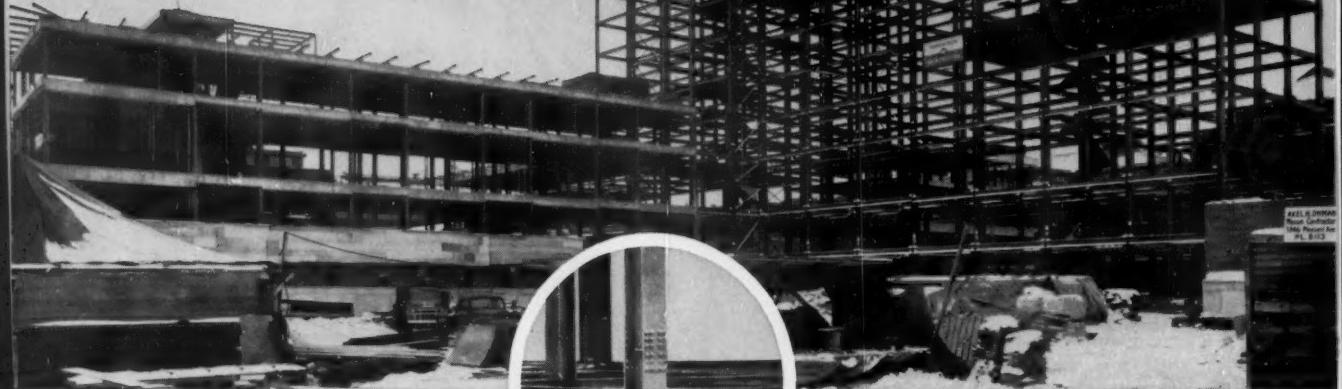
So it's Barnes again on another tough one. And if Barnes is tops on the tough jobs — think what a buy they are for the every day, ordinary de-watering jobs.

The Barnes Line of Self-Priming Centrifugals ranges in suction and discharge sizes from 1-in. to 6-in., with capacities from 2,000 to 90,000 G.P.H. Choice of Gasoline, Diesel, Electric or Pulley Drives.



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Another example of AMERICAN BRIDGE construction



Owner: University of Minnesota.

Plans and Specifications by C. H. Johnston, Architects-Engineers, St. Paul, Minnesota.

Fabricated and Erected by American Bridge.

Field connections on 2,300-ton steel framework made with high-strength bolts!

The University of Minnesota's imposing new Mayo Memorial Medical Center, in Minneapolis, is one of the largest steel frame structures erected with high-strength bolts for field connections.

2,300 tons of structural steel—all of it fabricated and erected by American Bridge—went into the framework of the building. The project consisted of an auditorium approximately 100' x 125'; an east wing six stories high, approximately 50' x 250'; a south wing six stories high, approximately 50' x 140'; and a fourteen-story tower section, approximately 50' x 250'.

The successful use of high-strength bolts on a building of this size makes a good case for the soundness of this type of construction. American Bridge crewmen can make strong, tight connections with high-strength bolts as efficiently and speedily as less skilled personnel can handle the more common methods.

Another factor favoring the use of bolted connections is the reduction of construction noise. And this advantage creates considerable goodwill when erecting in business, hospital and educational areas.

But American Bridge plays no favorites when it comes to methods of making connections. Whether specifications call for riveted, welded or bolted construction, you can depend on American Bridge to handle the job with maximum efficiency, economy and speed—anytime, anywhere! For detailed information regarding your requirements, please contact the office nearest you.

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A.G.C. Branch and Chapter Meetings

» A MONTHLY, cumulative list of annual meetings scheduled by chapters and branches of The Associated General Contractors of America, as reported to THE CONSTRUCTOR:

- Nov. 14-16. Carolinas Branch. White Sulphur Springs, West Virginia. The Greenbrier.
- Nov. 18. Chicago Builders Chapter. Chicago. Builders Club.
- Nov. 21-23. Indiana Highway Constructors, Inc. French Lick. French Lick Springs Hotel.
- Nov. 30-Dec. 1. New York State Chapter, Inc. Buffalo. Hotel Statler.
- Dec. 1. Waco Chapter. Waco. Elite Cafe No. 2.
- Dec. 1-2. Wisconsin Chapter. Milwaukee. Plankinton Hotel.
- Dec. 3. Northern California Chapter. San Francisco. Palace Hotel.
- Dec. 5-7. Municipal Contractors Association. Dallas. Baker Hotel.
- Dec. 5-7. A.G.C. of North Dakota. Minot. Clarence Parker Hotel.
- Dec. 6-7. A.G.C. of Illinois. Springfield. Leland Hotel.
- Dec. 7. Austin Chapter. Austin. A.G.C. Plans Room.
- Dec. 7. Dallas Chapter. Dallas. Dallas Athletic Club.
- Dec. 7. Associated Building Contractors of Colorado, Inc. Denver. Albany Hotel.
- Dec. 7-8. Master Builders of Iowa. Des Moines. Savery Hotel.
- Dec. 9. Memphis Chapter. Memphis. Gayoso Hotel.
- Dec. 10. South Texas Chapter. Corpus Christi. Nueces Hotel.
- Dec. 10. Central California Chapter. San Francisco. Palace Hotel.
- Dec. 13. Spokane Chapter. Spokane. Spokane Hotel.
- Dec. 13. San Antonio Chapter. San Antonio. Plaza Hotel.
- Dec. 14. Seattle Chapter. Seattle. Chapter Office.
- Dec. 15. A.G.C. of Massachusetts. Boston. Hotel Kenmore.
- Jan. 4. Toledo Chapter. Toledo. Commander Perry Hotel.
- Jan. 4-5. A.G.C. of Missouri. Kansas City. President Hotel.
- Jan. 10-11. Portland Chapter. Portland. Multnomah Hotel.
- Jan. 11. Master Builders Association. District of Columbia. Mayflower Hotel.
- Jan. 12. Lake Charles Chapter. Lake Charles. Green Frog Restaurant.

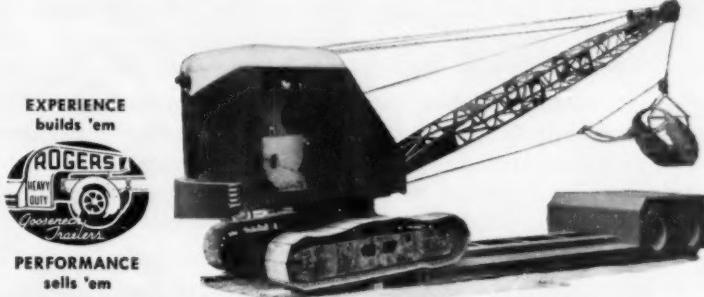
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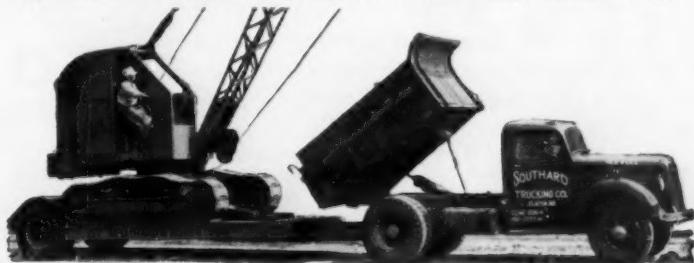
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CHAPTERS • BRANCHES

Jan. 12-13. Kansas Contractors Association, Inc. Kansas City. Muehlenbach Hotel.
 Jan. 12-13. Nebraska Chapter. Lincoln. Cornhusker Hotel.
 Jan. 15. Oklahoma Builders Chapter. Oklahoma City. Skirvin Hotel.
 Jan. 19. Louisville Chapter. Louisville. Chapter Building.
 Jan. 19-20. A.G.C. of Iowa. Des Moines. Hotel Savery.

Jan. 19-20. Nebraska Building Chapter. Omaha. Hotel Fontenelle.
 Jan. 21. Mississippi Valley Flood Control Branch. Memphis. Hotel Peabody.
 Jan. 21-22. Montana Contractors Association. Butte. Finlen Hotel.
 Jan. 21-22. Colorado Contractors Association, Inc. Denver. Shirley Savoy Hotel.

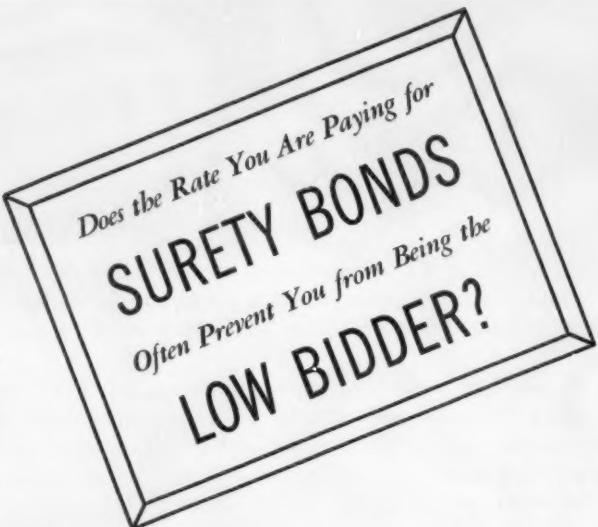
Jan. 27. Rhode Island Chapter. Providence. Narragansett Hotel.
 Jan. 27-29. A.G.C. of Minnesota. Minneapolis. Hotel Nicollet.
 Jan. 27-29. Virginia Chapter. Richmond. Hotel John Marshall.
 Jan. 28-29. West Virginia Chapter. Charleston. Daniel Boone Hotel.
 Feb. 9. Tacoma Chapter. Tacoma. Winthrop Hotel.
 Feb. 10. Contractors Association of Western Pennsylvania. Pittsburgh. Hotel William Penn.
 Feb. 12. Kentucky Highway Division. Louisville. Kentucky Hotel.
 March 9. Houston Chapter. Houston. College Inn.
 April 11-12. Michigan Road Builders' Association. Grand Rapids. Pantlind Hotel.

Tentative Dates

Dec. 2. A.G.C. of South Dakota. Aberdeen. Alonzo Ward Hotel.
 Dec. 7. Florida West Coast Chapter. Tampa. (Not Selected).
 Jan. Alaska Chapter. Seattle, Washington. New Washington Hotel.
 Jan. 7. South Florida Chapter. Miami. Miami Shores Country Club.
 Jan. 11. General Building Contractors Association. Philadelphia. Barclay Hotel.
 Jan. 11. Panhandle of Texas Chapter. Amarillo. 1009 Lincoln Street.
 Jan. 13. Baltimore Builders Chapter. Baltimore. Park Plaza Hotel.
 Jan. 14. Mountain Pacific Chapter. Seattle. Benjamin Franklin Hotel.
 Jan. 17. Milwaukee Chapter. Milwaukee. Schroeder Hotel.
 Jan. 27. Michigan Chapter. Lansing. Hotel Olds.
 March. Cincinnati Chapter. Cincinnati. Cincinnati Club.
 March-April. Metropolitan Builders Association. New York City. University Club.
 April. Buffalo Chapter. (Not Selected.)

Municipal Contractors Association, A.G.C., held its quarterly meeting in Fort Worth Sept. 19-20, with a large attendance of members and guests. Principal speakers included James Wright, Congressman-elect from Texas' 12th Congressional District, and Col. Harry O. Fischer, district engineer, Fort Worth District.

President L. H. Durst reminded members that the group's December meeting would be held during the state-wide A.G.C. convention, Dec. 5-7.



The difference between the Surety Bond rates you are now paying and Manufacturers preferred bond rates can easily mean the difference between just missing a contract and being the low bidder who wins it. If other costs are more or less equal, look to your bond rate for a money-saving item! Manufacturers preferred rates for preferred risks offer to responsible contractors of established ability, substantial savings, as much as 25%.

Manufacturers has complete facilities for handling your bonds.

Write Manufacturers for the Name of Our Agent in Your Territory who Specializes in Surety Bonds.



New York's Newest Highway

Rests on Piles Driven by
McKIERNAN-TERRY Hammers



Driving the first pile
for the South Street
Elevated Highway in
New York City

The South Street Elevated Highway in New York City is the newest link in the circumferential express road around Manhattan Island. It is built on "made" ground along the lower end of the East River, so its columns had to be supported on piles driven to bed rock.

Approximately 1,600 H-beam piles were used for this 1½-mile link, varying in length from 35 feet to more than 200 feet, and the job was vastly complicated by operating in one of the city's most congested areas. For this critical work, the contractor, Fehlhaber Corp. of New York, selected McKiernan-Terry S10 Single-Acting Pile Hammers.

Contractors all over the country are accustomed to use McKiernan-Terry strong speedy equipment for every type of pile-driving job. Write for bulletin describing the complete line of 18 sizes of double-acting hammers and extractors and single-acting hammers.

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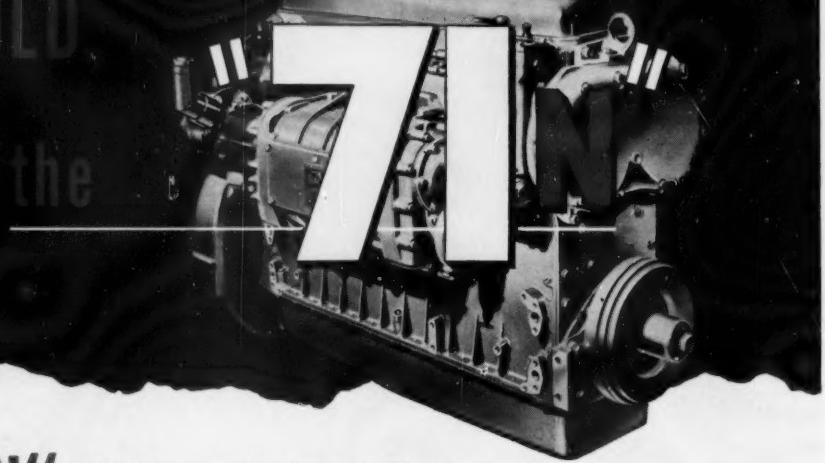
McKIERNAN-TERRY CORPORATION, Manufacturing Engineers

Also manufacturers of Coal and Ore Unloaders and Bridges, Grab Buckets, and Special Machinery

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MK 388

WE SHOULD
CALL IT *the*



"N" FOR NEW—New Where It Counts Most

You don't have to be an old-timer to remember when the first General Motors Series 71 Diesel was introduced. We called it the "71" in 1938 and we call it the "71" today.

But in 17 years these design improvements from top to bottom have given operators higher horsepower, lower fuel consumption and longer engine life. And now, a whole series of new improvements has made this fast-stepping, compact, 2-cycle Diesel better than ever.

NEW **17 TO 1 COMPRESSION** gives better fuel economy, squeezing more power from every gallon of fuel.

NEW **"FIGURE 8" CYLINDER LINERS** give you a cleaner burning, more efficient engine. Air intake area is increased 32% for more complete fuel burning and better exhaust.

NEW **IMPROVEMENTS IN PISTON PIN, PIN RETAINER AND CAM FOLLOWER DESIGN** mean longer life, less maintenance cost. High-valve unit injectors last longer because the valve assembly is away

from high cylinder temperature areas. Hard-chrome steel "Lite-Tite" piston rings resist wear; are tougher and more flexible and give many more hours of service.

And—best of all—in your next overhaul you can incorporate any or all of these new improvements in any GM Series 71 Diesel engine you're operating today. "The Inside Story" tells you how these new improvements can help cut your costs and speed your jobs. Mail the coupon today for your copy.

DETROIT DIESEL ENGINE DIVISION

GENERAL MOTORS • DETROIT 28, MICHIGAN
Single Engines . . . 30 to 300 H.P. • Multiple Units . . . Up to 893 H.P.

It Pays to STANDARDIZE on

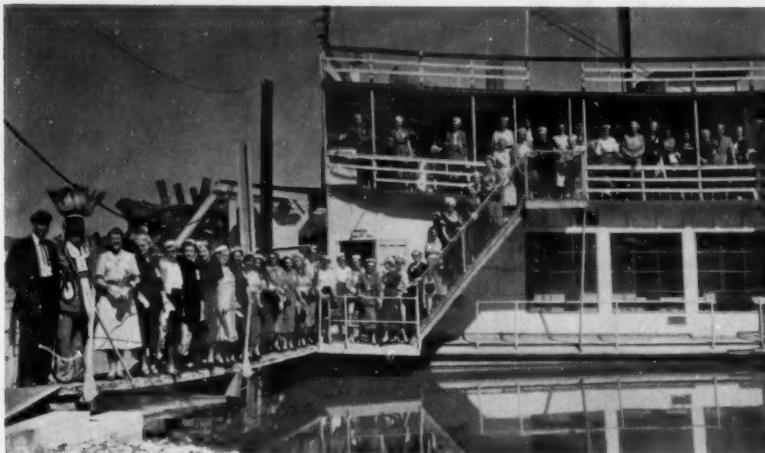


Write For Booklet

DETROIT DIESEL ENGINE DIVISION
General Motors Corporation
Detroit 28, Michigan

Please send me booklet "The Inside Story"

Name: _____
Position: _____
Company: _____
Address: _____
City & State: _____

Ladies Enjoy St. Louis Luncheon and Cruise

During the midyear meeting of the A.G.C. Governing and Advisory Boards in St. Louis, Sept. 27-29, a ladies luncheon was held at the famed Harbor Point Yacht Club. The women, above, are going aboard the club's river boat *Plaza*, escorted by Indian Host Jim Booth, second from left.



The ladies cruise down the Mississippi aboard a Chris-Craft.

A.S.C.E. Elects Glidden

The American Society of Civil Engineers held its annual convention in New York City's Statler Hotel last month, installed new officers and elected three honorary members to the society.

William Roy Glidden, Richmond, assistant chief engineer of the Virginia Department of Highways, was installed as president of the 102-year-old society, succeeding Daniel V. Terrell, dean of engineering at the Uni-

versity of Kentucky. Other new officers are Frank L. Weaver, Washington, D. C., and Louis R. Howson, Chicago, vice presidents.

New honorary members include Robert J. Cummins, Houston; Shortridge Hardesty, New York City; and Edward P. Lupfer, Buffalo.



Mr. Glidden

**HOW TO HANDLE
WET JOBS****NEW SEA LIFE HOME
FOR MARINE STUDIOS**

Marineland, Fla.

Contractor: Arthur Perry, Inc.



50 POINTS, 240-ft header: What volume could be handled by a well-point system of such size, working in very coarse water-bearing sand just a few ft from the ocean? Answer below.



3,960,000 GALS per day were pumped round-the-clock for the life of the job—this entire flow handled by one Griffin Vac-u-matic wellpoint pump.

SUCH exceptional drainage volume—it's 55 gals per minute for each point—will surprise many contractors. Others know from repeated experience the superiority and efficiency of the Griffin system.

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WELLPOINT CORP.

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In Canada: Construction Equipment Co., Ltd.
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Kinnear Steel Rolling Doors



Write today for full details

The KINNEAR Mfg. Co.

FACTORIES:

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Heavy galvanizing (1.25 oz. pure zinc per square foot, ASTM standards) assures high resistance to corrosion. Special Kinnear Paint Bond assures thorough paint coverage and lasting paint adhesion.

Saving Ways in Doorways
KINNEAR
ROLLING DOORS

MEN AND EVENTS

Annual Report Awards

Three A.G.C. firms again won the first, second and third-place awards for the best annual reports in the construction industry in last month's 14th competition sponsored by the publication, *Financial World*.

Merritt-Chapman & Scott Corporation, New York, took first place for the fourth time in the "construction services" classification.

Second place went to Dravo Corporation, Pittsburgh, Pa., and third place to Morrison-Knudsen Co., Boise, Idaho. Last year, Merritt-Chapman & Scott won first place, Morrison-Knudsen second, and The Fluor Corporation, Los Angeles, third.

About 5,000 annual reports were considered in 100 industrial classifications in the Best-of-Industry competition, with well-known financial analysts and an insurance company executive acting as judges.

The "Oscar of Industry" bronze trophy was presented to the first-place winners at a banquet October 25 at the Hotel Statler, New York, which was attended by about 1,400 business and financial executives.

Carey Retires from A.S.C.E.

William N. Carey will retire as executive secretary of the American Society of Civil Engineers, effective May 1, 1955, it was announced this month by the association.

Col. Carey, former chief engineer of the Federal Works Agency and former city engineer of St. Paul, Minn., will become secretary emeritus.

He will be succeeded by William H. Wisely, Champaign, Ill., now executive secretary of the Federation of Sewage and Industrial Wastes Associations, and editor of its publication, *Sewage and Industrial Wastes*. Mr. Wisely, who holds engineering degrees from the University of Illinois, will go to New York next January 1 as associate secretary.

Vincent Hermans, 46, Hermans Construction Co., A.G.C., Fort Dodge, Iowa, died of a heart ailment on Sept. 11. He was buried at Milbank, S. Dak. Funeral services were held at the Corpus Christi Church in Fort Dodge.

A member of the Master Builders of Iowa, Inc., A.G.C., Mr. Hermans is survived by his wife and two sons, ages five and ten.



Photographs taken on the job in Long Island, N. Y.

Here's what they say about the new **MICHIGAN® 3/4 YARD**

Contractor: Hendrickson Bros., Inc., General Contractors
Valley Stream, New York

Job: Excavation and pipe laying for Southern State Parkway, Long Island

MASTER MECHANIC:

"We tried out the new T-24 for a week; and, because it did such a good job in that short time, we bought it."

OPERATOR:

"It's got delicate control and positive action. I can put the bucket down just where I want it, pick up a cable or wooden stake and not even disturb the dirt. It's a fast machine."

OILER:

"This Michigan is an oiler's dream. The liberal use of ball bearings on shafts, drums and rollers means less wear and much less oiling. All we do is oil our T-24 once a week."

There's little to add to these Hendrickson statements—except to emphasize that you, too, will move bigger yardage faster and at less cost with a MICHIGAN Series "24" 3/4-yard excavator-crane. Best way to prove it is to do as Hendrickson did . . . TRY IT! Send for the booklet "Bigger Yardage Through Air Power"; and for detailed specifications.

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY
Construction Machinery Div.
382 Second Street

Benton Harbor, Michigan 24

Please send the booklet "Bigger
Yardage Through Air Power" and
specifications of MICHIGAN Series "24".

Name _____

Firm _____

Address _____

City _____

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COVERING IMPORTANT CONTRACTING PROCEDURE



Prepared by The Associated General Contractors of America and Cooperating Bodies

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(Contains documents listed below: Nos. 3-30, inclusive, and Nos. 34, 35, 36, 36a, 37, 38).					Building Construction (For Qualifying Before Bidding)20	\$1.80	\$12.00	
2. Accident Prevention Manual (Revised and enlarged 1952)	3.00	30.00	\$210.00		26. Standard Questionnaires and Financial Statement for Bidders—Complete in Cover.				
(Pocket-sized sectional reprints available. Information on request.)					Engineering Construction (For Qualifying After Bidding) .....	.20	1.80	12.00	
CONTRACTS									
3. Suggested Form of Contract, Engineering Construction Projects, prepared by A.S.C.E. and A.G.C., 1953 edition.....	.25	.275	20.00		27. Standard Questionnaires and Financial Statement for Bidders—Complete in Cover.				
4. Standard Building Contract of the American Institute of Architects—Revised 6th Edition .....	.50		47.50		Building Construction (For Qualifying After Bidding) .....	.20	1.80	12.00	
5. Subcontract form—American Institute of Architects—Revised 6th Edition.....	.10		9.50		28. Financial Statement and Questionnaire for Credit Transactions .....	.20	1.80	12.00	
6. Standard Form of Acceptance of Subcontractor's Proposal .....	.10		9.50		MISCELLANEOUS				
7. Standard Government Contract.....	.01				29. Insurance Check List.....	.10	1.00	5.00	
8. A.G.C. Cost Plus a Fee Contract.....	.10	.50	2.50		30. The Functions of a General Contractor...	.10	.75	6.00	
9. A.I.A. Cost Plus a Fee Agreement between Contractor and Owner—Revised 6th Edition .....	.10				34. A.G.C. Governing Provisions.....	.10	.50	3.00	
11. Equipment Rental Agreement.....	.10	.50	3.00		35. A.G.C. Code of Ethical Conduct.....	.10	.50	3.00	
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13. A.I.A. Accounting Form #701 "Change Order"20	1.80	12.00		36a. Contractors' Pump Standards.....				
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17. Job Overhead Summary.....	.10	.50	3.00		FOR A.G.C. MEMBERS ONLY				
20. Contractors' Equipment Ownership Expense (Itemized tables of ownership expense elements with instructions for application. Revised 1949)	1.00	10.00	65.00		A.G.C. EMBLEM				
21. Equipment Record—Bond paper10	.50	3.00		List of Styles and Prices on request.				
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INVESTIGATION OF BIDDERS									
24. Standard Pre-Qualification Questionnaires and Financial Statements for Prospective Bidders—Complete in Cover.					39. A.G.C. Cardboard Seal (red and black) 24" dia.....	.50			
Engineering Construction (For Qualifying Before Bidding) .....	.20	1.80	12.00		40. A.G.C. Metal Seal (red and black) 10" dia.....	.40			

43. A.G.C. SOCIAL SECURITY FORMS
Form SS1: Application for Employment; Form SS2: Employees' History Record; Form SS3: Employees' Employment and Earnings; Form SS4: Payroll. List of prices and styles will be furnished to A.G.C. members on request.

USE THE CONVENIENT COUPON TO PLACE YOUR ORDER									
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Make Checks payable to CONSTRUCTION FOUNDATION, A.G.C., Munsey Building, Washington 4, D. C.

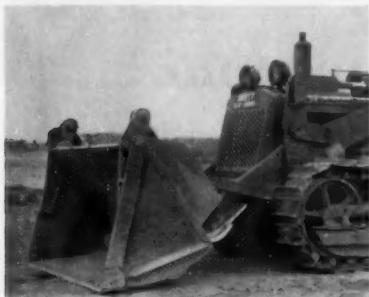
Gentlemen: Enclosed find check for \$_____ for which please send materials as ordered by number herewith.

Name _____ Address _____

City _____ Zone _____ State _____

Nov. 1954

Loader Attachment—*Drott Manufacturing Corp., Milwaukee 8.* "Four-In-One" attachment for skid shovels for International TD-6 ($\frac{7}{8}$ -yd.) and TD-9 ($1\frac{1}{4}$ -yd.) crawler tractors does variety of jobs that previously required 4 separate attachments. By moving small hydraulic control lever, operator transforms machine from skid shovel to bulldozer, bulleclam shovel or clamshell. As skid-shovel, with clam fully closed, straight-forward loading is accomplished by tilting bucket forward as desired. When loading trucks, bins or stockpiles, "Four-In-One's" bottom dump allows material to fall out. With clam open, rear of bucket becomes bulldozer moldboard. Depth of cut is accomplished through radius control, degree of cut being regulated by forward and backward pitch of blade over loader shoes, rather than by lifting and lowering of push beams. However, push beams may be raised and lowered as desired. When operating as bulleclam shovel, design of curved clam, plus special wearplate, brings ironing, crushing and compacting action ahead of clam as it moves forward. When loading, clam acts as depth gage, because opening it 10" allows cutting edge to lower 2". Opening clam wide and rolling unit forward makes it possible to operate as clamshell for picking up stockpiled or other loose material. Clamshell is brought down on loose material and closed into pile, filling as it goes. This operation is done hydraulically by operator, while tractor stands still.



Drott "Four-In-One" attachment with clam closed in skid shovel position

Mortar Mix—*Zonolite Co., 135 S. LaSalle St., Chicago 3.* New vermiculite mortar mix makes it unnecessary to strike joints after every course of brick and eliminates need for shaking, manufacturer states. Two cu. ft. of vermiculite plaster aggregate are used

per cu. yd. of masonry mortar, or $1\frac{1}{2}$ gal. of vermiculite plaster aggregate per one-sack mortar batch. Vermiculite retains enough moisture to keep mortar from drying out too fast. It also prevents water from settling out on mortar platform board, eliminating need for shaking or remixing mortar.

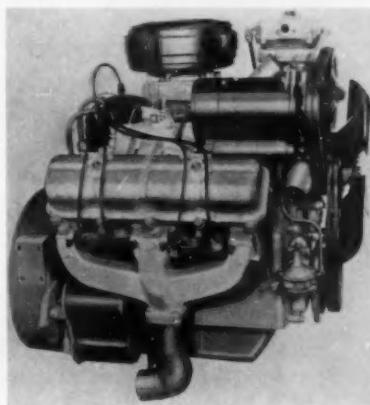
Scraper—*Allis-Chalmers Tractor Division, Milwaukee 1.* Model 108 pull scraper has 8.4 cu. yd. struck and 11 cu. yd. heaped capacity. Cable-operated, it is of welded box-type construction with over-all length of $27\frac{1}{3}$ ', over-all width of $10\frac{1}{3}$ ' and, in load-carrying position, $7\frac{2}{3}$ ' height. Width of cut is $8\frac{1}{2}$ ' and depth ranges up to 10". It features 3-piece reversible type cutting edge, heat-treated and hard-faced, free-floating type front apron, low, wide bowl with curved bottom and smooth interior and positive forced ejection. Shipping weight is approximately 15,250 lb.

Trencher—*Parsons Co., Newton, Iowa.* Hydraulic control of digging wheel is feature of new 150 wheel-type "Trenchliner." Digging wheel travels up and down vertical mast. Hydraulic ram raises and lowers wheel, holds close grade tolerance at any depth. Mast is power-controlled. Separate hydraulic ram tilts mast to carry weight of wheel forward on machine for proper balance when traveling, loading or unloading. Machine produces from 12" to 25' of trench per minute. Its digging capacity is $5\frac{3}{4}$ ' deep and 16" to 26" wide. It is equipped with range of 30 digging feeds and 3 speeds on heavy-duty digging wheel up to 11.25 r.p.m. It has shiftable and reversible belt conveyor that discharges spoil to either side; dual-purpose, friction-type clutch on digging wheel drive; solid or tine-back buckets with gumbo lips or "Tap-In" type teeth; retractable bucket cleaner; optional tile box and chute. Gasoline or diesel engine is available.



Parsons 150 wheel-type "Trenchliner"

Engines—*Reo Motors, Inc., Lansing 20, Mich.* Pair of low-friction V-8's are newest additions to "Gold Comet" line of truck engines. Larger engine has 441-cu. in. displacement and develops 220 maximum gross brake h.p. at governed speed of 3,200 r.p.m. Second unit has 390-cu. in. displacement and produces 195 gross brake h.p. at same governed speed. Engines feature short stroke, removable "wet" cylinder sleeves and high percentage of interchangeable parts. Both engines weigh 1,211 lb. with accessories and flywheel housing and 1,739 lb. including clutch and transmission. They are $39\frac{1}{2}$ " long from front of fan to rear of flywheel housing. They will be installed in conventional truck-tractors that are 96" long from front of bumper to back of cab, and which weigh less than 10,500 lb. In addition to powering new line of Reo truck models, they will be available in complete kit form as replacement engines in all makes of trucks.



Reo Motors' new V-8 engine

Shovel Cab—*Clark Equipment Co., Construction Machinery Division, Benton Harbor, Mich.* All-weather molded steel cab is now available for all models of Michigan tractor-shovels. Cab has all-around and overhead vision through safety glass windows set in rubber molding. Rear section, which has sliding windows, can be removed in 5 minutes. Glass in overhead window is tinted. Movable rear section will lock open or closed in any position. Inside of cab, which weighs approximately 275 lb., is sprayed with insulating compound to deaden noise. Windshield wiper is standard equipment and heater and defroster unit is optional.

Grader—*Caterpillar Tractor Co., Peoria 8, Ill.* No. 12 motor grader now has 115 h.p. Clutch and transmission have increased capacity to match greater h.p. In both No. 12 and No. 112 one-lever from-seat starting is now available. They are equipped with accelerator-decelerator pedals that permit changing speeds without changing throttle setting. New throttle is free-moving non-ratchet type and instrument panel is located to right of operator for greater visibility.



New Caterpillar No. 12 motor grader

Power Unit—*Willys Motors, Inc., 1060 N. Cove Blvd., Toledo, Ohio.* Four "Power Giant" industrial engines are being installed into complete package, equipped with radiator, gas tank,

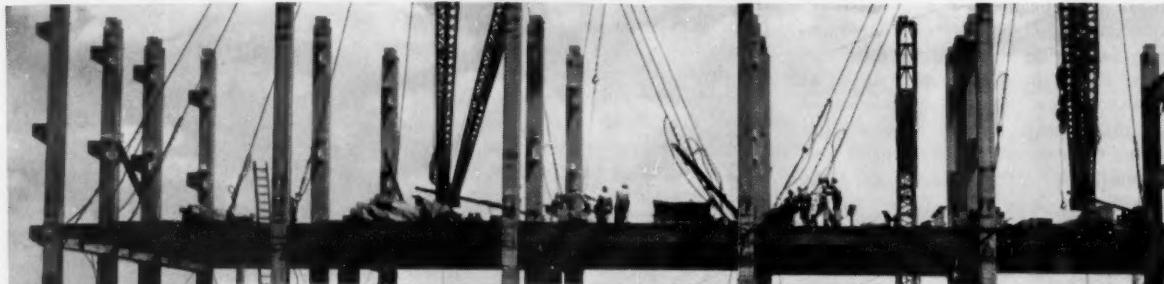
air cleaner, complete electrical equipment and governor. Enclosure is heavy-gage steel housing. Unit is mounted on reinforced skids. Engines are Jeep Model L-4 developing 47.5 brake h.p. at 2,400 r.p.m. and 59 brake h.p. at 4,000 r.p.m.; "Hurricane" Model F-4, developing 51 brake h.p. at 2,400 r.p.m. and 70 at 4,000; "Lightning" Model L-6 with brake h.p. of 56 at 2,400 r.p.m. and 75.5 at 4,000; "Giant Hurricane" F-6, with 60 brake h.p. at 2,400 r.p.m. and 90 at 4,200.

Concrete Saws—*Clipper Manufacturing Co., 2800 Warwick, Kansas City 8, Mo.* New gasoline-powered concrete saws with optional self-propulsion are Models C-250 (25 h.p.) and C-146 (14.6 h.p.). They are designed for cutting contraction joints in new concrete and sawing boundaries of sewer and utility trenches in old pavement. Power is supplied from engine to variable-speed transmission. Two abrasive-coated drive wheels operate in direct contact with both rear

wheels of saw. Speed is infinitely adjustable from zero to approximately 12' per minute. Toe pedals, easily reached from operating position engage and disengage transmission. Rigid 4-wheel mounting of saw chassis is made possible by patented floating front axle so that blade is suspended on 3 points and when saw wheels pass over uneven surface, blade remains straight in cut. Blades are raised and lowered by patented positive screw feed, with cutting depth lock.



Model C-250 Clipper concrete saw cutting contraction joints in green concrete slab



WILL YOUR NEXT BID INCLUDE THE "FINAL FACTOR"?

Many times a low bond rate can be the *final factor* that tilts a bid in your direction.

How can you make sure of this *final factor* in your bids? Ask your Indemnity Agent to establish your credit line with Indemnity Insurance Company of North America. This large independent company

offers the lowest bond rates* to contractors of *skill, integrity and responsibility*.

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INDEMNITY INSURANCE COMPANY OF
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One of the North America Companies which are headed by Insurance Company of North America, founded 1792

Cut concrete column costs!

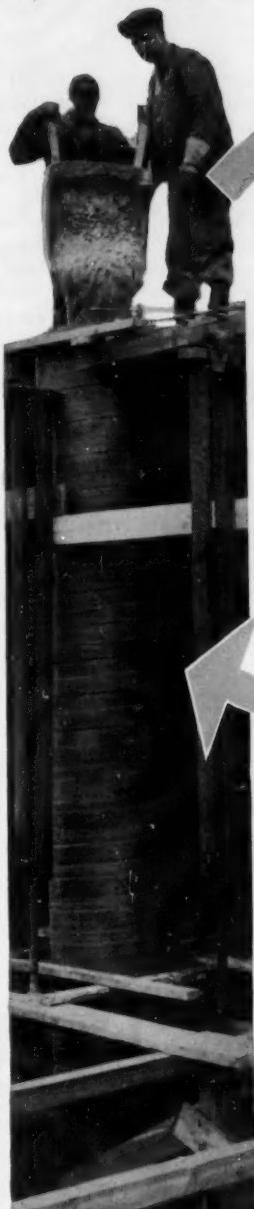
Batch Body—The Galion Allsteel Body Co., Galion, Ohio. Designed for use in delivering measured quantities of cement and aggregate to concrete mixers on highway construction projects, new body is divided into 4 aggregate compartments by waterproof batch boxes. Full-width hinged bottom plate on each box is designed to assure even distribution of cement over aggregate during discharge. Boxes are removable to permit use of dump body for material stockpiling. Mounted on Model 880 hoist, 11-yd. Model 12N-7 batch body has capacity of 54 cu. ft. in each aggregate compartment and 18.6 cu. ft. in each cement batch box. Bodies are also available in 9- to 11-cu. yd. capacities.



Galion Allsteel batch body

Winch-Hoist—The Lug-All Co., 331 E. Lancaster Ave., Wynnewood, Pa. "Lug-All" winch-hoist is now equipped with more rugged main frame which protects ratchet teeth from rough surfaces. It weighs 9 lb. and can handle up to 1½ tons. It is equipped with reversible safety handle that will bend when extreme overloads are applied. Loads are backed off by interlocking pawl arrangement. It has stainless steel springs, oiled-for-life bearings and 133 strand flexible preformed aircraft cable that winds on drum.

Pump—Essick Manufacturing Co. and Sterling Machinery Co., 1950 Santa Fe Ave., Los Angeles 21. Model 4D diaphragm pump has 4" suction and 4" discharge fittings. It conforms to standards of Contractors Pump Bureau of A.G.C. Improvements in design have reduced pulsation. Reduction gears are totally enclosed to eliminate wear and corrosion. It is furnished on rugged steel base, 16" steel wheels or 400:8 pneumatic tires.



Pouring concrete
—Pierce and
Phelps Co. bldg.
Phila., Pa.—
Robert E. Lamb
Co., contractors
Photo by
E. Troiani

DENFORM
reusable
capital form
designed for use
with
SONOTUBES.
Write for details.



FIBRE FORMS

for round
columns of
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SONOTUBE Fibre Forms for concrete columns save construction time, labor and money!

Save time because they are quickly erected and require minimum bracing.

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Widely used by contractors and approved by engineers and architects everywhere.

Available in 31 sizes, from 1" to 36" I.D. up to 50' long.

For complete technical data and prices, write



SONOCO PRODUCTS COMPANY

Construction Products Division
LOS ANGELES, CAL. 900 S. RAYMOND AV. HARTSVILLE, S.C. — MAIN PLANT MONTCLAIR, N.J. 100-110 PARK ST.
GARWOOD, N.J. BRANTFORD, ONT. AKRON, OHIO

Transit Mixer Chassis—*Dart Truck Co., 27th & Oak Sts., Kansas City 8, Mo.* Model 15-DT is designed for 54,000 to 60,000 lb. g.v.w. with front tandem axle loading of 24,000 to 30,000 lb. Rear tandem loading is 28,000 to 32,000 lb., depending on type of mixer and its location on truck chassis. Truck is powered by 178 h.p. or 200 h.p. engine and has 5-speed main transmission and auxiliary. Front tan-

dem axle is designed with rocker-type spring suspension and self-floating axles. Twin hydraulic cylinders provide finger-tip steering. Air or hydraulic brakes are offered.

Masonry Saw Blade—*Construction Machinery Sales Co., Waterloo, Iowa.* "Orange Break-Proof Safety Blade" is internally reinforced with special type of fiber glass which gives blade

flexibility and strength. Blade comes in 3 types: S-1 for wet cut of any hard or dense material, S-2, general-purpose wet cutting choice, S-3, all-purpose dry cutting blade.

Compaction Roller—*Buffalo-Springfield Roller Co., Springfield, Ohio.* K-45 "Kompactor" has 4 large diameter rolls, made of heavy welded steel segments placed in staggered rows around each roll. Segments which form rolling surfaces enter loose material with minimum displacement forward or horizontally and leave without disturbing compacted areas. Machine is self-propelled, reversible and can work close to abutments and culverts. Rollers feature automotive hydraulic booster-type steering, 4-wheel hydraulic brakes, 3-stage torque converter drive, 2-range, full-reversing transmission, torque proportioning bevel gear-type differential. Gross weight is approximately 32,000 lb., wheelbase is 13'10", over-all length, 20'7", width, 8'9½", height (less exhaust stack), 6'. Engine is 110 h.p. heavy-duty industrial diesel.

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A STANDARD STEEL
PRESSURE DISTRIBUTOR
GIVES EQUAL CIRCULATION
THROUGHOUT THE SPRAY BAR FOR A
UNIFORM SURFACE FROM CURB TO CURB
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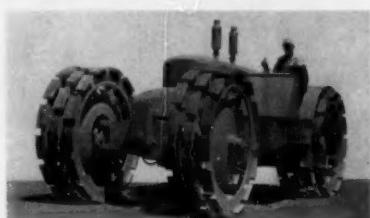
STANDARD STEEL PRESSURE DISTRIBUTOR

The Model 424 can be loaded in quick time for a "fast get-away". A two-way cleaning system guarantees a clean spray bar at the end of the day. First, the material is sucked out of the bar and back into the tank. Then by turning one small valve, cleaning solvent is released into pump and spray bar (without contaminating the asphalt in the tank). No time lost in tinkering — no time lost in loading — Standard Steel 424 keeps going all day long far ahead of the "gravel gang".

WRITE FOR CATALOG 424



Standard Steel Works NORTH KANSAS CITY, MO.



Buffalo-Springfield "Kompactor"

Transit-Level—*Charles Bruning Co., 4700 Montrose Ave., Chicago 41.* Model 65 builder's transit-level features dustproof ball-bearing center and telescopic axis, sealed in with special silicone grease that needs re-packing about once in 20 years. Size variations of balls do not exceed half wave length of light; they are pre-loaded in races of comparable accuracy under approximately 100 p.s.i. It operates at temperatures ranging from -70° to 160° F. Eight-inch, 20-power telescope is sealed against dust and is resistant to moisture-condensation; it may be tilted as much as 42° up or down. Coated optics transmit more than 75% of light; cross wires are Fiberglas, with internal focus collimated from 3' to infinity. Vertical arc and horizontal circle are graduated in degrees with vernier reading to 5 minutes.

Engines—Detroit Diesel Engine Division, General Motors, 13400 W. Outer Drive, Detroit 28. Improvements in cylinder assembly of Series 71 diesel engines provide better fuel economy, increased h.p. in some sizes and longer life, manufacturer states. Improvements are listed as new cylinder liner which provides freer flow of air into cylinder, new piston which increases compression ratio and longer-life compression rings. New liners and pistons are interchangeable with those formerly used and may be installed on engines now in service. Booklet, *The Inside Story*, describing new cylinder is available from manufacturer or distributors.

Heat Machine—Fageol Heat Machine Division, R. D. Fageol Co., Kent, Ohio. New electrical safety controls and new streamlined venting stack are features of 1955 Model VO 168,000 B.T.U. heat machine. Controls are grouped at front of machine and consist of stack switch, fan limit switch and master switch. Stack switch shuts off oil burner if oil does not ignite within 90 seconds after it is sprayed on burner. Fan limit switch controls blower and automatically holds temperatures between prefixed limits, preventing over-heating. Master switch cuts off all controls and motors and operates manually. Stack permits easy attachment of outside vent. VO-168 operates from detached fuel supply, using regular furnace-type fuel oil or kerosene.

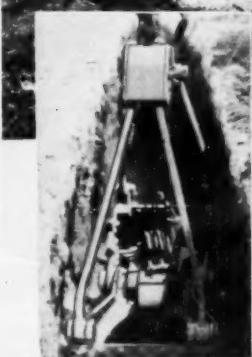
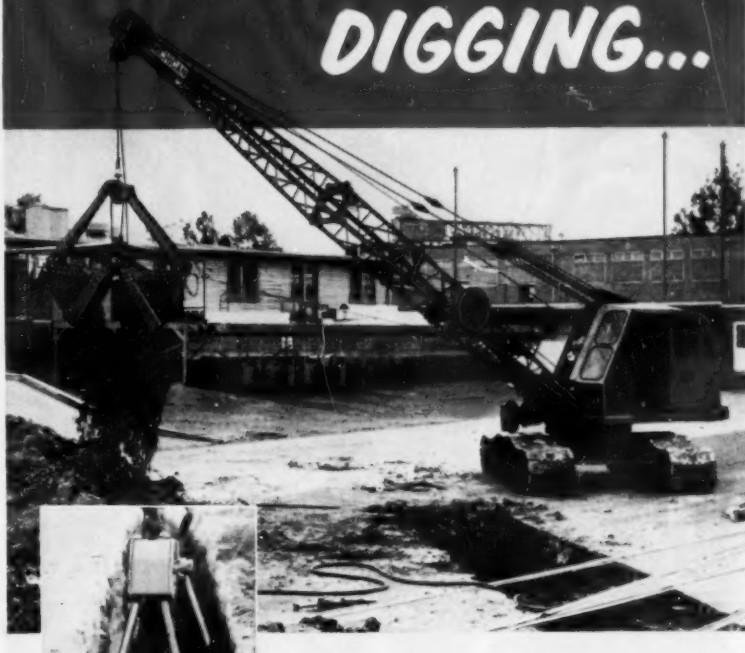
Powder-Actuated Tool—Powder Power Tool Corp., 7526 S.W. Macadam Ave., Portland 1, Oreg. "Drive-It 320" fastens steel to steel or wood furring to concrete. It drives hardened steel pins directly into metal, concrete or wood by means of specially loaded cartridge, setting from 5 to 8 pins per minute. "Break-Open" breech action permits quick loading and ejection of pin and cartridge. Different safety pads for specific fastening applications are available, as well as pins designed for unusual operations.



Powder Power Tool Corp.'s "Drive-It 320"

Top notch efficiency in

DEEP DOWN SPOT DIGGING...



Tangible, valuable features contribute to the exceptional trench excavating of

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Basic features include: correctly designed shells for easy penetration and discharge—removable counterweights to help force the shell into material and the block and tackle principle of multiplying closing power.

Others are low headroom that makes handling easy—low center of gravity that aids in placing the bucket when below the line of vision and side cutters which cut clearance for the bucket and aid in maintaining parallel trench walls.

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Crane-Shovel—*Bay City Shovels, Inc., Bay City, Mich.* Catalog 70/700-A describes design and construction features of 1½-yd. crane-shovel. Machinery and parts pictures show many improvements. Pictures show machines at work on various jobs.

Grader—*The Galion Iron Works & Mfg. Co., Galion, Ohio.* Catalog 353 on Model 104 93 h.p. motor grader, illustrates and describes design and construction features and gives complete specifications. Featured are hydraulic control system, constant-mesh transmission and 4-wheel all-gear tandem drive. Action photos show grader on maintenance and construction jobs. Attachments are shown and described.

Engine—*Cummins Engine Co., Columbus, Ind.* Service bulletin, *Give the Cooling System a Chance*, gives suggestions on best way to care for engine's cooling system. It tells how to treat coolant to prevent corrosion, how to keep cooling system clean, how to insure circulation and how to prepare for seasonal operation.

Masonry Saw—*Construction Machinery Sales Co., Waterloo, Iowa.* New saw is presented in illustrated folder. Features are indicated in large sketch, modifications for various cuts are explained, use as slab cutter is shown. Specifications are given.

Insulation—*Zonolite Co., 135 S. LaSalle St., Chicago 3.* Principal applications, installation procedures and properties of vermiculite insulation are described in booklet, Form HI-48. It outlines application of vermiculite fill in non-residential, home and farm building construction, as concrete block insulation, in cold storage and as sound deadener. Installation in attics, flat roofs and side walls is described and typical U values of wall and ceiling designs are listed. Research findings pertaining to vermiculite's value in air conditioning and its non-settling, fireproof, rotproof and verminproof properties are included.

Strapping—*A. J. Gerrard & Co., 1950 N. Hawthorne Ave., Melrose Park, Ill.* Folder describes line of "Bulkbinder" heavy-duty strapping, strapping tools and accessories. It gives complete descriptions and how-to-order information on tensioning tools, sealers, seals, cutters, strapping, accessories and combination units. Photos illustrate major product appli-

17-ton glass-lined Tank going up to top story of stockhouse 198 feet high

cations, including binding heavy-duty concrete forms.

Grader—*J. D. Adams Manufacturing Co., Indianapolis 6.* Motor grader No. 550 is described in new catalog. It covers construction of machine, its operating advantages and shows its application on variety of work.

Gradall—*The Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3.* First in series of application bulletins to show variety of jobs Gradall handles shows 31 construction job pictures. Pictures show machines on excavating, grading and lifting jobs and at work uncovering pipelines, digging basements and placements for footers and handling sloping, grading and backfilling jobs. They are also shown ditching, road widening, road repairing and working on new highway construction.

Form Strapping—*Signode Steel Strapping Co., 2630 N. Western Ave., Chicago 47.* Spring-summer issue of *Signode Seal* introduces strap form ties for securing concrete column forms. It describes use of steel-strapped forms on apartment buildings, hospitals, public buildings and bridge columns.

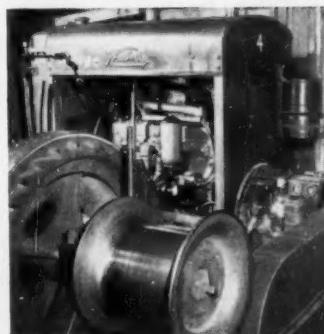
Truck-Crane—*Harnischfeger Corp., 4604 W. National Ave., Milwaukee 46.* Bulletin TX-152 presents Model 55 "Miti-Mite" truck-crane. It reports on design and features of machine, describing and picturing it and showing its convertibility. It is shown in service on various types of carriers.

Porcelain-on-Steel—*Erveen Corp., 4000 W. Ridge Rd., Erie, Pa.* Booklet deals with prime factors involved in architectural porcelain-on-steel construction. Illustrations show several different types of building applications. It contains information on design and engineering of architectural porcelain. Included is series of plant photos showing various stages in manufacture of panels.

Aluminum Products—*Quaker State Metals Co., Manheim Pike at Route 230 Bypass, Lancaster, Pa.* Catalog lists all products manufactured by company, including roofing and siding products, standing seam roofing, weatherboard siding, flashing and roll valley, gutter and downspouting. Featured is cross corrugated roll aluminum roofing, new patented product.



highest hoist at MILLER HIGH LIFE...with WAUKESHA



Price Erecting Co., Milwaukee, used a Thomas Winch with a six cylinder, 4½-in. x 5½-in., 517 cu. in., Waukesha Power Unit with a Twin Disc torque converter.

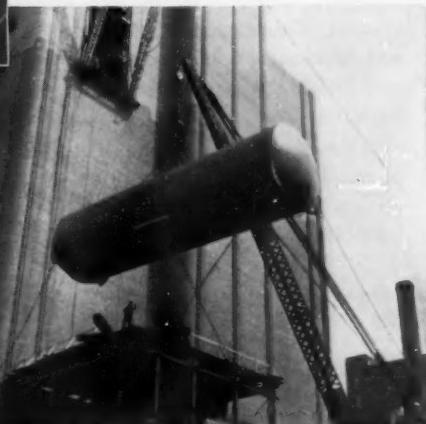
WAUKESHA ENGINES
and POWER UNITS
10 hp. to 600 hp.

Send for Bulletin 1079

WAUKESHA
MOTOR COMPANY
Waukesha, Wisconsin
New York • Tulsa • Los Angeles

Built in 3 phases, Stockhouse I at Miller Brewery, Milwaukee, stores ¼-million bbls. Miller High Life in 240 tanks. Each 1070-bbl. glass-lined tank is 45' long, 11'6" diam., weighs 34000 lbs. In the third construction phase, 80 tanks were hoisted to 4 top stories of this 12-story, 198-ft. high stockhouse. Five weeks, 2100 ft. of cable, and Waukesha power did the job.

257



Pumps—Worthington Corp., Harrison, N. J. Bulletin W-395-B2 explains graphically specifications, applications and sizes of various types of self-priming centrifugal pumps. Information is given on component parts, characteristics, ranges of application and chart of pump models listing dimensions in inches is included.

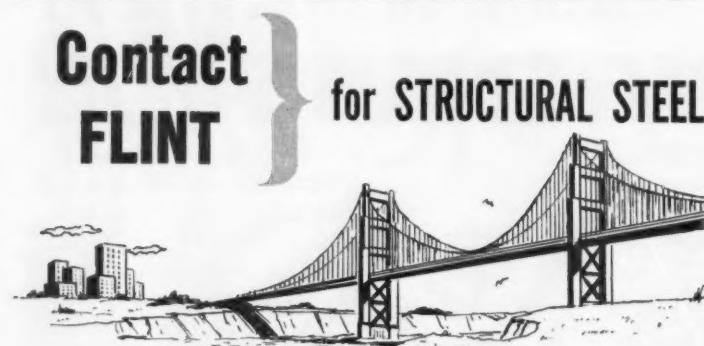
Mixer—Worthington offers in Bulletin 1240-S4 specification sheet for "Blue Brute" 6-S concrete mixer. Condensed specifications are given as well as standard and optional equipment available. Dimensions are graphically illustrated by line drawing.

Drills—New England Carbide Tool Co., 60 Brookline St., Cambridge 39, Mass. Manual gives information on drilling soft, medium hard or extremely hard masonry; all sizes of holes and correct drills to be used. Recommendations are made for suitability of 4 types of carbide-tipped masonry bits manufactured by this company. Manual also includes information on size of holes necessary

to accommodate various sizes of anchors, expansion bolts, pipes and conduit. It gives type of drill and r.p.m. and pressure required for all sized holes up to 6" in all types of masonry.

Scaffolding—Beaver Art Metal Corp., Ellwood City, Pa. Catalog and parts list gives description of various parts employed for erection of "Advance" tubular steel scaffold and materials-hoisting towers. Typical installations are shown, load test results are illustrated and safety regulations are listed.

Calcium Chloride—The Dow Chemical Co., Midland, Mich. Manual gives report on "Peladow," high-test, pellet-type calcium chloride. It explains how it permits transportation, storage and mechanical handling of calcium chloride in bulk. Data on properties, specifications and applications are included. Separate sections are devoted to its use in connection with highways, concrete, tire ballast and other applications. Unloading methods are explained.



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Years of experience in most kinds of steel fabrication can be yours for the asking. Contact Flint for fabricated structural steel.

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and Economy

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TULSA • MEMPHIS

J. W. Bloomquist has been appointed domestic sales manager of EUCLID DIVISION of GENERAL MOTORS CORP.

L. B. FOSTER Co. has been appointed exclusive national distributor of Taylor-Forge spiral weld foundation pipe in 46 states, and a distributor of the pipe in Texas and California.

MERRITT-CHAPMAN & SCOTT CORP.'s offer to acquire MARION POWER SHOVEL Co. and its subsidiary, the Osgood Co., through an exchange of shares had been accepted by Oct. 13 by shareholders representing more than 50% of Marion stock and the terms of the exchange offer consequently became effective.

Charles A. Woodley has been elected a vice president of CATERPILLAR TRACTOR Co. and Lloyd J. Ely has been named to succeed him as manager of the Peoria plant.

Jim Suter has been appointed sales engineer of THE FRANK G. HOUGH Co.

Lowell Conrad has been appointed director of engineering and Raymond H. Bowman chief engineer of the engineering section of CLARK EQUIPMENT Co.'s Construction Machinery Division.

Raymond N. Carlen has been appointed assistant to the vice president in charge of operations of JOSEPH T. RYERSON & SON, INC.

G. A. Hudson, former manager of the farm tire sales department of GOODYEAR TIRE AND RUBBER Co., has been named manager of truck tire sales.

James E. Kuppe has been appointed general sales manager of CARVER PUMP Co. He succeeds Robert E. Tanner, who is also vice president and general manager.

E. C. Rook has been appointed vice president and general manager of the BLAW-KNOX EQUIPMENT DIVISION. He succeeds G. L. Dirks, who has resigned.

James T. Karabasz has been appointed general manager of the LURIA STEEL SUPPLY Co.

Fred J. Schmidt has been appointed chief sales engineer of the AMERICAN STEEL DREDGE Co.

L. Jack Clarke has been appointed general sales manager of LESCHEN WIRE ROPE DIVISION of H. K. PORTER Co.

Conde Hamlin, formerly general sales manager of DE WALT, INC., has been elected vice president in charge of sales and a director.

Kirk Hazelton has been appointed operations manager of the PERLITE DIVISION of GREAT LAKES CARBON CORP.

C. F. Rogers has been appointed general sales manager of AMERICAN TRACTOR CORP.

Obituary

Gilbert H. Turner, director of industrial relations for The Timken Roller Bearing Co. since September 1948, died October 9 at the age of 48.

Statement of the Ownership, Management and Circulation Required by the Act of Congress of August 24, 1912, as Amended by the Acts of March 3, 1933, and July 2, 1946.

OF THE CONSTRUCTOR, published monthly at Washington, D. C., for October 1954.

1. The names and addresses of the publisher, editor, managing editor, and business manager, are:

Publisher: THE CONSTRUCTOR, Inc., 1227 Munsey Building, Washington 4, D. C.
Editor, H. E. Foreman, 1227 Munsey Building, Washington 4, D. C.
Managing Editor, William E. Woodruff, 1227 Munsey Building, Washington 4, D. C.
Business Manager, Marjorie Beck, 1227 Munsey Building, Washington 4, D. C.

2. The owner is: (If owned by a corporation its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member must be given.)

THE CONSTRUCTOR, Inc., 1227 Munsey Building, Washington 4, D. C.

The Associated General Contractors of America, Inc., 1227 Munsey Bldg., Washington 4, D. C.
John MacLeod, president, Macco Corp., Paramount, Calif.

George C. Koss, vice president, Koss Construction Co., Des Moines, Iowa.

William Muirhead, secretary-treasurer, Wm. Muirhead Construction Co., Durham, N. C.

3. The known bondholders, mortgagees, and other security holders owning or holding one per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

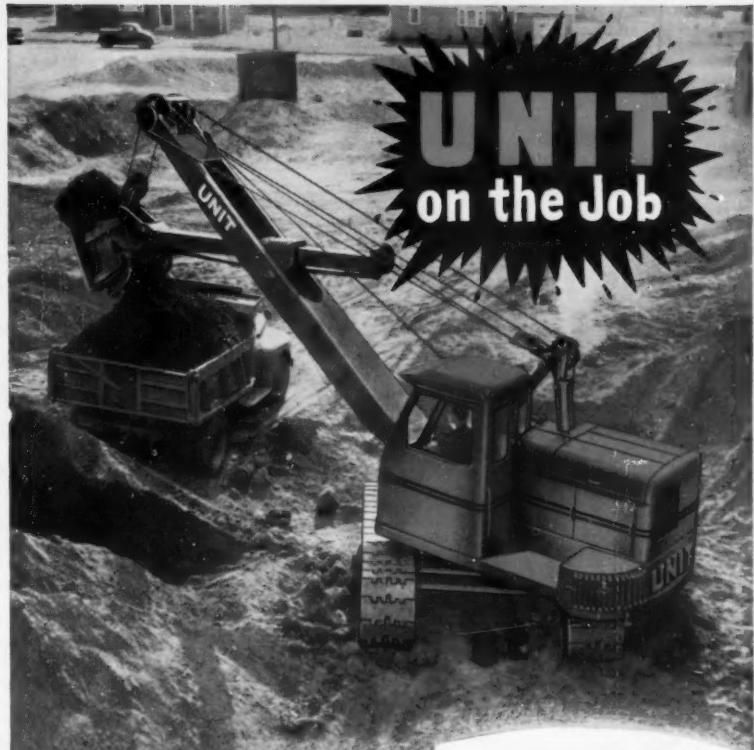
4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner. Marjorie Beck, Business Manager.

Sworn to and subscribed before me this 8th day of October, 1954.

(SEAL)

ELNIE L. LEISHEAR.

(My commission expires Dec. 31, 1958.)



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CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL**



GUIDE TO ADVERTISERS' PRODUCTS

Manufacturers' addresses are listed on page 94

Asphalt Joint Sealer

Servicised Products Corp.

Asphalt Plants (Portable)

Barber-Greene Co.
Iowa Mfg. Co.
Standard Steel Works
Universal Engineering Corp.

Axles (Truck)

Eaton Manufacturing Co.

Backfillers

Bucyrus-Erie Co.
Cleveland Trencher Co.
Harnischfeger Corp.
Parsons Co.
Unit Crane and Shovel Corp.

Batchers

Blaw-Knox Division
Butler Bin Co.
Construction Machinery Co.
Heltzel Steel Form & Iron Co.
C. S. Johnson Co.

Bearings (Anti-Friction, Tapered Roller)

Hyatt Bearings Division
Timken Roller Bearing Co.

Belting

Carlyle Rubber Co.

Bins

Blaw-Knox Division
Butler Bin Co.
Heltzel Steel Form & Iron Co.
Iowa Mfg. Co.
C. S. Johnson Co.

Bits (Detachable Drill)

Ingersoll-Rand Co.
Timken Roller Bearing Co.

Blasting Accessories

American Cyanamid Co.

Bridges

American Bridge Division
Armo Drainage & Metal Products

Buckets (Clamshell & Dragline)

Blaw-Knox Division
Bucyrus-Erie Co.
Harnischfeger Corp.
C. S. Johnson Co.
Owen Bucket Co.
Wellman Engineering Co.

Buckets (Concrete)

Blaw-Knox Division
Construction Machinery Co.
Heltzel Steel Form & Iron Co.
Insley Manufacturing Corp.
Owen Bucket Co.

Buildings

Allied Structural Steel Cos.
American Bridge Division
Armeo Drainage & Metal Products
Luria Engineering Co.
Macomber, Inc.
Truscon Steel Division

Bulldozers

LeTourneau-Westinghouse Co.

Car Pullers

Clyde Iron Works
Superior-Lidgerwood-Mundy Corp.

Cement (Common and Special)

Lehigh Portland Cement Co.
Lone Star Cement Corp.
Universal Atlas Cement Co.

Cement (White)

Trinity White, General Portland Cement Co.
Universal Atlas Cement Co.

Clamps (Hose)

Dixon Valve & Coupling Co.

Column Forms

DesLauriers Column Mould Co.

Compressors

Allis-Chalmers Co.
Ingersoll-Rand Co.
LeRoi Co.

Concrete Mixers, Pavers, Tamers

Chain Belt Co.
Construction Machinery Co.
Foote Construction Equipment Division, Blaw-Knox Co.
Jaeger Machine Co.
Knickerbocker Co.
Koehring Co.
Kwik-Mix Co.
T. L. Smith Co.
Worthington Corp., Construction Equipment Division

Concrete Slab Void Tubes

Sonoco Products Co.

Concrete Vibrators

Concrete Surfacing Machinery Co.
Electric Tamper & Equipment Co.
Ingersoll-Rand Co.

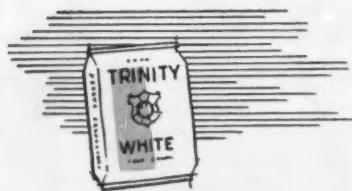
Conveying Machinery

Barber-Greene Co.
Chain Belt Co.
Iowa Mfg. Co.
Universal Engineering Corp.

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the whitest white cement



Trinity White is a true portland cement and has unexcelled beauty—the beauty of the whitest white . . . plus the best possible results when color pigments are added. Use it wherever you want greater masonry beauty or higher light reflection as for example: architectural concrete units; terrazzo; stucco; light-reflecting floors and walls. For descriptive literature, write Trinity White Cement, 111 W. Monroe St., Chicago.

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 Bucyrus-Erie Co.
 Clark Equipment Co., Construction Machinery Division
 Cleveland Trencher Co.
 Clyde Iron Works
 Harnischfeger Corp.
 Insley Manufacturing Corp.
 Koehring Co.
 Northwest Engineering Co.
 The Shovel Co.
 Unit Crane and Shovel Corp.

Crushing Machinery
 Allis-Chalmers Co.
 Austin-Western Co.
 Iowa Mfg. Co.
 Universal Engineering Corp.

Culvers
 Albert Pipe Supply Co.
 Armclo Drainage & Metal Products

Cutters (Abrasive)
 Wodack Electric Tool Corp.

Decking (Roof Steel & Aluminum)
 Macomber, Inc.

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 Clyde Iron Works
 Sasgen Derrick Co.

Doors (Metal, Wood)
 Kinnear Mfg. Co.
 R. C. Mahon Co.
 Truscon Steel Division

Dredging Machinery
 Harnischfeger Corp.
 Northwest Engineering Co.

Drills & Drilling Machinery
 Bucyrus-Erie Co.
 Ingersoll-Rand Co.
 Timken Roller Bearing Co.

Drills (Electric)
 Wodack Electric Tool Corp.

Electric Plants
 Kohler Co.

Elevators (Material)
 Chain Belt Co.
 Iowa Mfg. Co.
 Universal Engineering Corp.

Engines
 Allis-Chalmers Tractor Div.
 American Hoist & Derrick Co.
 Caterpillar Tractor Co.
 Continental Motors Corp.
 Detroit Diesel Engine Division
 Harnischfeger Corp.
 Ingersoll-Rand Co.
 International Harvester Co.
 Kohler Co.

Engines—Cont.
 LeRoi Co.
 Reo Motors, Inc.
 Waukesha Motor Co.
 Wisconsin Motor Corp.

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 Laclede Steel Co.
 Servicised Products Corp.

Explosives
 American Cyanamid Co.

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Finishing Machines (Bituminous)
 Barber-Greene Co.
 Foote Construction Equipment Division

Finishing Machines (Concrete)
 Blaw-Knox Division

Flooring
 Truscon Steel Division

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 Blaw-Knox Division
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 Helzel Steel Form & Iron Co.
 Joseph T. Ryerson & Son, Inc.
 Sonoco Products Co.
 Symons Clamp & Mfg. Co.
 Universal Form Clamp Co.

Generating Sets (Electric)
 Caterpillar Tractor Co.

Graders
 J. D. Adams Mfg. Co.
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 Austin-Western Co.
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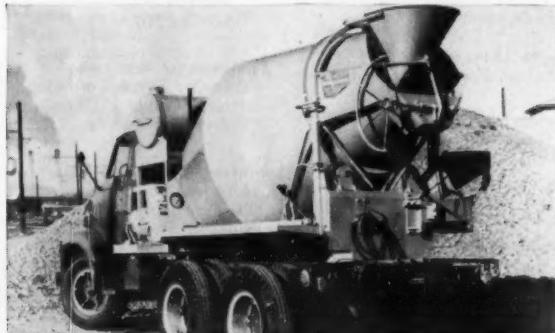
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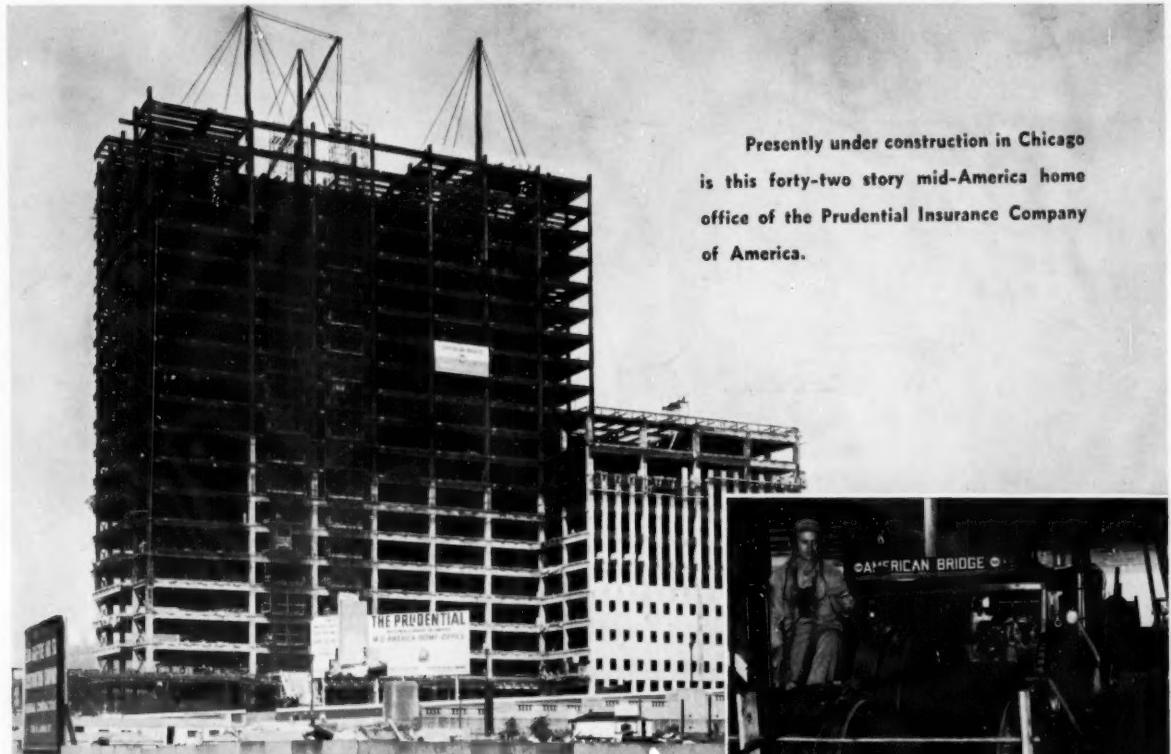


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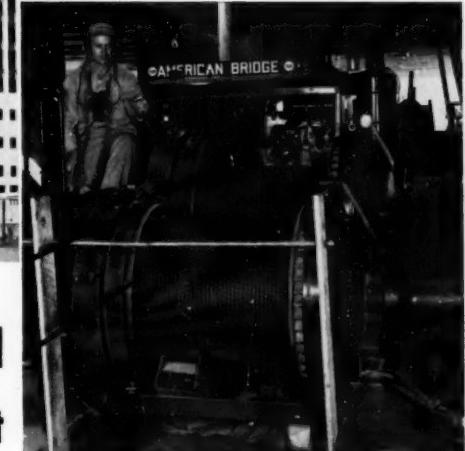
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Three CLYDE hoists set steel on this forty-two story Chicago project



There's a lot the illustrations do not show about this construction project.

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